**Keywords:** **doctrine of equivalents; doctrine of claim differentiation**

**General:** **In a case in which the alleged infringer modified their product prior to issuance of the patent in suit to avoid literal infringement, the Federal Circuit affirms a district court finding of infringement under the doctrine of equivalents.**

***Voda v. Cordis Corp.***
87 U.S.P.Q.2d 1742 (Fed. Cir. 2008)
Decided August 18, 2008

## I. Facts

Voda sued Cordis for patent infringement of a series of patents involving catheters used in interventional cardiology. Specifically, Voda asserted that Cordis's "XB" catheters infringe one or more claims from each of three related patents. A jury trial ended with a verdict finding that Cordis willingly infringed all asserted claims of the patents-in-suit and that none of the claims were invalid.

By way of background, a cardiac guide catheter is a long thin plastic tube with a preformed tip. The method of using the cardiac guide catheter involves first inserting a wire into the catheter to straighten the preformed tip. Once the wire is inside the catheter, the catheter is inserted into the femoral artery and advanced to the aorta of the heart. The catheter is further advanced up the descending aorta, over the aortic arch, and down the ascending aorta until the tip of the catheter reaches a position at or near the opening (i.e., "ostium") of the coronary artery. The wire is then removed from the catheter, which allows the tip of the catheter to return to its preformed shape. As the catheter tip returns to its shape, the tip is inserted into the coronary ostium while another portion of the catheter rests against the opposing wall of the aorta to provide support.

Each of the related applications in the present suit is directed to guide catheters with "a significant change in the overall shape/configuration" of the catheter in order to "maximize backup support for distal advancement of the balloon catheter through the guide catheter."

The accused product, Cordis's XB catheter, is similar to the claimed structure. The original version of Cordis's XB catheter, which was made and sold prior to the issuance of Voda's patents, included a "second straight portion," as claimed in the patents that ultimately issued. However, before the Voda patents issued, Cordis redesigned its XB catheter by replacing the second straight portion with a redesigned curved portion. The "second straight portion" refers to the portion of the catheter that rests on the opposing wall of the aorta (i.e., the contact portion).

After a jury found infringement of all three patents-in-suit, Cordis appealed both the infringement finding and the finding of validity. Specifically, Cordis argued that their redesigned device does not infringe the asserted claims, based primarily on three limitations relating to the contact portion.

## II. Issues

A. Did the court err in construing "along a line" as *not* requiring that the contact portion be straight?

B. Did the court err in finding that Cordis's contact portion meets the straight and substantially straight limitations of the claims at issue under the doctorate of equivalents?

C. Did the court err in finding that the claims at issue were not invalid?

D. Did the court properly find willful infringement?

## III. Discussion

A. No. In the district court's construction of "along a line" the court found that the term did not limit the contact portion of the catheter to being straight. Cordis argued that the contact portion of the catheter had to be straight in its rest state because the term straight is inherent in the word "line." In affirming the district court's construction, the Federal Circuit noted that Cordis's argument failed to recognize that claim 1 refers to the position of a catheter as it is being used in the human body rather than the shape of the catheter in its rest state. Thus, because "along a line" describes the contact portion of the catheter in its engaged state, claim 1 does not inherently require the contact portion to be straight in its rest state. The court further noted that certain dependant claims recited that the portion was substantially straight. Thus, the court found that the doctrine of claim differentiation further supported the finding that the portion "along a line" was not limited to a straight portion. In addition to the claim language itself, the court also found that the written description did not clearly disavow the claim scope at issue (i.e., limit the portion to only a straight portion). Finally the Federal Circuit also noted that the prosecution history included no clear and unambiguous express surrender of such subject matter (i.e., a non-straight portion). The court noted that while the claim element at issue was amended, it was only amended to include a length rather than the shape of the contact portion of the catheter in its rest state. Therefore, the court found that the shape of the contact portion of the catheter was not limited by the prosecution history.

B. No. Certain of the claims at issue recited "a second straight portion" or a "first substantially straight leg," each of which refers to the contact portion. While it was clear that the redesigned curved portion of the Cordis device did not literally infringe the recited features, the district court found that the claims were infringed under the doctrine of equivalents. The Federal Circuit affirmed these findings as to all independent claims. The court did however find that the district court erred in not finding that amendment-based estoppel precluded the application of the doctrine of equivalents for certain of the dependent claims which added a straight limitation to further limit the contact portion.

With regard to the doctrine of equivalents analysis, the Federal Circuit discussed both the "insubstantial differences test" and the "function-way-result test." Of import with regard to the insubstantial difference test, the court noted that one of Voda's experts testified that the difference in shape between the redesigned curved contact portion and the straight contact portion was so insubstantial that a cardiologist would have difficulty distinguishing the two during use.

With regard to the function-way-result test, the court relied on Voda's experts in finding that the redesigned curved contact portion provides the same function as the straight (or substantially straight) contact portion of the Voda claims because it provides extra backup support for the catheter during use. The court also noted that "XB" stands for "extra backup." The court also found that Voda's experts testified that the redesigned curved portion functioned in the same way as the straight and substantially straight contact portions because it engages the wall of the aorta opposite the coronary ostium for a substantial length during use. Finally, the court relied on testimony that the redesigned curved contact portion achieves the same result as the straight and substantially straight elements by making it "difficult to dislodge the guide catheter from its desired location." Accordingly, the Federal Circuit affirmed that the accused device infringed the claims directed to "straight" and "substantially straight" features under the doctrine of equivalents.

C. No. The Federal Circuit also found that the challenged claims at issue were not invalid. Cordis argued that under the district court's construction "along a line" that certain claims were invalid for anticipation and/or obviousness in view of the prior art. The claim element at issue requires "engaging the aorta inner wall with a portion of the catheter body such that the distal end of the catheter is positioned in the ostium, the catheter body engages the opposite wall of the aorta along in line having a length of about 1.5 centimeters or greater." The Federal Circuit agreed with

the district court in that the Voda claims were neither anticipated nor obvious in view of the asserted references.

With regard to the anticipation finding, the court noted that while Cordis placed substantial reliance in the testimony of one of its experts, regarding the method of using the alleged prior art catheter, the court observed that the district court noted that the expert was merely a catheter engineer and not an interventional cardiologist. Accordingly, the district court specifically instructed the jury that the expert had no education or training in the use of guiding catheters in the human body and had never used a catheter in a human. The Federal Circuit found that this instruction was not an abuse of discretion.

Cordis also relied on the testimony of its expert which, unfortunately, admitted during cross examination that his estimates regarding some of the features of the alleged prior art, including the length, were "very inaccurate" and he did not represent his estimates "to be accurate in any way."

With regard to the district court finding that the Voda claims were not obvious, the Federal Circuit simply noted that Cordis offered no arguments and cited no evidence in support of its conclusion that the recited features would have been obvious in view of the prior art. Accordingly, the Federal Circuit found that a reasonable jury could conclude that the claims were not invalid.

D. Yes. After the trial court verdict, the Federal Circuit, in *In re Seagate*, overruled the standard of willfulness previously adopted and used by the trial court based on the *Underwater Devices* case. Accordingly, in the instant case, the Federal Circuit remanded the finding of willfulness such that a jury instruction including the objective recklessness standard from *Seagate* may be considered.