

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

VISIONSENSE CORP.,  
Petitioner,

v.

NOVADAQ TECHNOLOGIES INC.,  
Patent Owner.

---

Case IPR2017-01426  
Patent 8,892,190 B2

---

Before HYUN J. JUNG, MICHAEL L. WOODS, and  
AMANDA F. WIEKER, *Administrative Patent Judges*.

JUNG, *Administrative Patent Judge*.

DECISION  
Institution of *Inter Partes* Review  
*37 C.F.R. § 42.108*

## I. INTRODUCTION

Visionsense Corp. (“Petitioner”) filed a Petition (Paper 4, “Pet.”), requesting institution of an *inter partes* review of claims 1–3 of U.S. Patent No. 8,892,190 B2 (Ex. 1001, “the ’190 patent”). Novadaq Technologies Inc. (“Patent Owner”) timely filed a Preliminary Response (Paper 11, “Prelim. Resp.”). Under 35 U.S.C. § 314, an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

Upon consideration of the Petition and Preliminary Response and for the reasons explained below, we determine that Petitioner has shown that there is a reasonable likelihood that it would prevail with respect to at least one of the challenged claims, and we institute an *inter partes* review of claims 1–3 of the ’190 patent.

### A. *Related Proceedings*

The parties indicate that there are no related litigation matters. Pet. 7; Paper 6, 1 (listing only related patent applications).

### B. *The ’190 Patent (Ex. 1001)*

The ’190 patent issued November 18, 2014, from an application filed March 13, 2012, which claims priority through continuation applications to application number PCT/US00/22088, filed on August 11, 2000, and a provisional application filed September 24, 1999. Ex. 1001, [22], [45], [60], [63], 1:8–16.

The ’190 patent pertains to “procedures for observing blood flow through the cardiovascular system.” *Id.* at 1:20–22. In one aspect, a method provides for analysis of patency of a portion of a blood vessel. *Id.* at 4:18–

20. Patency refers to freedom from occlusions, which occur when a blood vessel narrows to the point that it becomes completely blocked. *Id.* at 1:31–32, 1:59–60. The method can be employed “for assessing blood flow in a portion of animal tissue wherein the tissue . . . is being or has undergone an invasive procedure.” *Id.* at 5:19–22; *see also id.* at 3:12–16. In an invasive procedure, “one or more incisions are made in the tissue of an animal, or entry of an instrument into an orifice of an animal is undertaken,” which continues “until the incisions are sutured, or the instrument is withdrawn.” *Id.* at 4:35–42. An illustrative treatment includes joining a blood graft to vessel ends or bypass. *Id.* at 4:59–65. “Bypass includes . . . attaching ends of a graft vessel at locations upstream and downstream of the stenosis, occlusion or other problem,” and “an anastomosis, i.e., the junction of the native and graft vessels, is created.” *Id.* at 5:1–3, 5:12–13.

The method would allow evaluating the “extent of blood flow through vasculature located downstream of a treated vessel” to assess the success of the treatment. *Id.* at 5:22–25. Such a method includes “administering a fluorescent dye . . . , obtaining at least one angiographic image of blood flowing through the tissue portion; and evaluating the at least one angiographic image to assess blood flow in the tissue portion.” *Id.* at 5:25–30. “Angiographic images may be obtained beneath the surface of these tissues to a depth not exceeding that which permits the vasculature of interest to be evaluated.” *Id.* at 5:52–53.

The ’190 patent states that “[f]luorescent dyes emit radiation of a known wavelength when excited by radiation of a particular wavelength.” *Id.* at 6:66–67. According to the ’190 patent, “wavelengths for both absorption and emission radiation associated with such dyes” and “[d]evices

capable of detecting emissions from . . . fluorescent dyes” are well known. *Id.* at 7:12–13, 8:22–24. After administering a fluorescent imaging agent, “a device capable of exciting any of the agent,” such as a laser, and “a device capable of detecting the radiation emitted,” such as a camera capable of obtaining multiple images over time, “are activated.” *Id.* at 7:51–54, 7:63–65, 8:22–25. Leading and trailing images are acquired before and after the images of interest, which can be used to determine the “rate and volume of blood flow through the treated vessel and adjacent original vessel.” *Id.* at 10:2–17. The “camera and laser may be located external to the patient.” *Id.* at 8:61–62.

The ’190 patent provides an example in which the fluorescence imaging technique was used on a mouse femoral artery. *Id.* at 10:66–67. The skin over the artery was “resected to expose the vasculature of interest,” and a “camera was positioned so that the field of view included the femoral artery and its branches.” *Id.* at 11:55–56, 12:9–10.

### *C. Illustrative Claim*

The ’190 patent has 3 claims, all of which Petitioner challenges. Pet. 7. Claims 1 and 3 are independent, and claim 1 is reproduced below:

1. A method for assessing blood flow moving through a vessel graft anastomosed in fluid communication with an interconnected group of blood vessels in an animal, the vessel graft and at least a portion of the blood vessels being exposed during a surgical procedure on the animal, the method comprising the steps of:

(a) administering a fluorescent dye to the animal such that the dye enters the vessel graft and the interconnected group of blood vessels;

(b) exciting the fluorescent dye within the vessel graft and said exposed portion of the interconnected group of blood vessels

with a source of illumination, thus causing the dye to emit radiation;

(c) capturing the radiation emitted by the fluorescent dye with a camera capable of imaging a series of angiographic images within the vessel graft and said exposed portion of the interconnected group of blood vessels, the images including at least an image of a fluorescent wavefront corresponding to an interface between the flowing blood that first contains the fluorescent dye introduced, such image being captured by the camera as the fluorescent wavefront transitions through the exposed vessel graft and interconnected group of blood vessels; and

(d) evaluating the angiographic images to assess blood flow through the vessel graft relative to blood flow through the interconnected group of blood vessels.

Ex. 1001, 13:36–14:16.

*D. Asserted Grounds*

Petitioner challenges the claims as follows:

Reference(s)	Basis	Claims Challenged
Little <sup>1</sup>	§ 102(b)	1 and 2
Little, Flower I <sup>2</sup> , and Flower II <sup>3</sup>	§ 103(a)	1–3
Flower I, Flower II, and Little or Goldstein <sup>4</sup>	§ 103(a)	1–3

<sup>1</sup> John R. Little et al., *Superficial Temporal Artery to Middle Cerebral Artery Anastomosis*, 50 J. Neurosurg. 560–569, (1979) (Ex. 1002).

<sup>2</sup> US 6,351,663 B1, filed Sept. 10, 1999, issued Feb. 26, 2002 (Ex. 1003).

<sup>3</sup> US 5,394,199, filed May 17, 1993, issued Feb. 28, 1995 (Ex. 1005).

<sup>4</sup> James A. Goldstein et al., *Intraoperative Angiography to Assess Graft Patency After Minimally Invasive Coronary Bypass*, 66 Ann Thorac Surg 1978–82, (1998) (Ex. 1007).

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.