

MAY 10 2002

K013886

Advanced Diagnostics Inc.

510(k) Submission  
Biopsy Feature Avera Model DEI System

## 510(K) SUMMARY

This summary of safety and effectiveness is provided as part of this Premarket Notification in compliance with the Safe Medical Device Act of 1990 revisions to 21 CFR, Part 807.92, Content and Format of a 510(k) Summary.

1. **Submitted By:**  
Advanced Diagnostics Incorporated  
8112 304<sup>th</sup> Avenue SE  
Preston, WA 98050  
**Contact Person:**  
Steve Hesler  
Director of Regulatory Affairs  
phone: 425 222 7169  
fax: 425 222 7171  
**Date Prepared:**  
November 19, 2001
2. **Proprietary Name:**  
Avera Model DEI System (Diffractive Energy Imaging)  
**Common/ Usual Name:**  
Acoustical Holography Imaging System  
**Classification Name:**  
90 NCS
3. **Predicate Device:**  
The DEI System is substantially equivalent to the OS-2000 Optical Sonography system cleared via k100150, November 30, 2000 with the addition of real-time image-guided biopsy capability. The biopsy feature in the DEI system is substantially equivalent to the Sonopsy LA System marketed by US Surgical Corp per K980424, cleared August 7, 1998.
4. **Device Description:**  
The DEI System is a general purpose, software-controlled, diagnostic ultrasound system that complies with pre-amendment application-specific acoustic output levels (track 1). Its function is to acquire ultrasound data in acoustical holography mode and display it on an LCD monitor.  
  
The DEI System has been designed to meet the following product safety standards:
  - UL 2601 – Standard for Medical Electrical Equipment - Part 1: General Requirements for Safety
  - ISO 10993 – Biological Evaluation of Medical Devices Part 1: Evaluation and Testing
  - "Information for Manufacturers Seeking Marketing Clearance of Diagnostic Ultrasound Systems and Transducers", September 30, 1997.
  - "510(k) Guide for Measuring and Reporting Acoustic Output of Diagnostic Ultrasound Medical Devices", CDRH, 1985.
5. **Intended Uses:**  
The DEI System acoustical holography imaging system is intended for the following uses: Small Parts, Pediatrics, Musculoskeletal, Superficial Musculoskeletal, and Peripheral Vascular applications.
6. **Technological Comparison to Predicate Device:**  
The DEI System is similar to the predicate device (OS-2000, k001510) in that both use an object transducer that is coupled to the patient by use of a water-path (immersion in water bath or use of water bladders) to transmit pulsed ultrasound through the targeted tissues.

These transmitted pulses are then acoustically focused. The focused ultrasound beam is then combined with a second plane wave (reference wave) of the same frequency as the transmit wave. The interaction of the transmit wave and the reference wave creates an interference pattern on a target detector device within the enclosed system, forming an acoustic hologram of the object. The detector is illuminated with a coherent light source (laser) resulting in a visual image. The visual image is recorded with a CCD video camera and the images are displayed on a video monitor. Images may be stored to hard disk. This modification to the predicate involves the addition of biopsy capability. The Avera is substantially equivalent to a predicate device, the Sonopsy LA System (K 980423) in that both allow real time image-guided biopsy within image guidance in 1 plane and an assist device to locate the plane of focus (depth plane).

**End of 510(k) Summary**



DEPARTMENT OF HEALTH & HUMAN SERVICES

Food and Drug Administration  
10903 New Hampshire Avenue  
Silver Spring, MD 20993-0002

OCT 13 2012

Mr. Steve C. Hesler  
Director of Quality and Regulatory Affairs  
Advanced Diagnostics, Inc.  
8112 304<sup>th</sup> Ave. SE, Suite B  
PRESTON WA 98050

Re: K013886  
Trade/Device Name: Avera Model DEI System  
Regulation Number: 21 CFR 892.1550  
Regulation Name: Ultrasonic pulsed doppler imaging system  
Regulatory Class: Class II  
Product Code: NCS  
Dated: February 27, 2002  
Received: March 1, 2002

Dear Mr. Hesler:

This letter corrects our substantially equivalent letter of May 10, 2002.

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

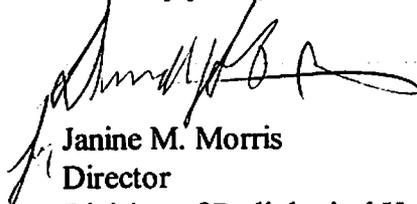
Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part

807); labeling (21 CFR Part 801); medical device reporting (reporting of medical device-related adverse events) (21 CFR 803); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820); and if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

If you desire specific advice for your device on our labeling regulation (21 CFR Part 801), please go to <http://www.fda.gov/AboutFDA/CentersOffices/CDRH/CDRHOffices/ucml15809.htm> for the Center for Devices and Radiological Health's (CDRH's) Office of Compliance. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to <http://www.fda.gov/MedicalDevices/Safety/ReportaProblem/default.htm> for the CDRH's Office of Surveillance and Biometrics/Division of Postmarket Surveillance.

You may obtain other general information on your responsibilities under the Act from the Division of Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638-2041 or (301) 796-7100 or at its Internet address <http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm>.

Sincerely yours,



Janine M. Morris  
Director  
Division of Radiological Health  
Office of In Vitro Diagnostics  
And Radiological Health  
Center for Devices and Radiological Health

**Attachment 1**

**Ultrasound Device Indications Statement**

510 (k) Number (if known) : **K013886**

Device Name : **Avera Model DU System**

Intended Use: **Diagnostic ultrasound imaging of human soft tissues**

**Mode of Operation**

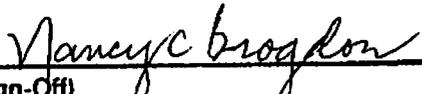
Clinical Application	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Acoustic Holography
Ophthalmic										
Fetal										
Abdominal										
Intraoperative Abdominal										
Neurosurgical										
Pediatric										P
Small Organ (Specify)										P <sup>1</sup>
Neonatal Cephalic										
Adult Cephalic										
Cardiac										
Transesophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel										P
Laparoscopic										
Musculo-skeletal Conventional										P
Musculo-skeletal Superficial										P
Other (specify)										N <sup>2</sup>

N = new indication; P = previously cleared by FDA; E = added under Appendix E

Other Indications or Modes:

- 1 Small organ imaging is intended for the breast
- 2 Breast biopsy

Concurrence of CDRH, Office of Device Evaluation (ODE)

  
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 (Division Sign-Off)  
 Division of Reproductive, Abdominal,  
 and Radiological Devices  
 510(k) Number           K013886          

