



Food and Drug Administration  
10903 New Hampshire Avenue  
Document Control Center – WO66-G609  
Silver Spring, MD 20993-0002

SIEMENS MEDICAL SOLUTIONS, INC.  
% Mr. MARK JOB  
RESPONSIBLE THIRD PARTY OFFICIAL  
1394 25TH STREET, NW  
BUFFALO MN 55313

September 6, 2016

Re: K162243

Trade/Device Name: ACUSON S1000 / S2000 / S3000 Diagnostic Ultrasound System  
Regulation Number: 21 CFR 892.1550  
Regulation Name: Ultrasonic Pulsed Doppler Imaging System  
Regulatory Class: II  
Product Code: IYN, IYO, ITX, OBJ  
Dated: August 4, 2016  
Received: August 10, 2016

Dear Mr. Job:

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 application (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. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

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 contact the Division of Industry and Consumer Education 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>. Also, please note the regulation entitled, “Misbranding by reference to premarket notification” (21 CFR 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 Industry and Consumer Education 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,

A handwritten signature in black ink that reads "Robert Ochs". The signature is written in a cursive style and is positioned above the typed name and title.

Robert Ochs, Ph.D.  
Director  
Division of Radiological Health  
Office of In Vitro Diagnostics  
and Radiological Health  
Center for Devices and Radiological Health

Enclosure

## Indications for Use

510(k) Number (if known)

K162243

Device Name

ACUSON S1000/S2000/S3000 Diagnostic Ultrasound System

Indications for Use (Describe)

The ultrasound imaging systems are intended for the following applications: Fetal, Abdominal, Intraoperative, Pediatric, Small Parts, Transcranial, OB/GYN, Cardiac, Pelvic, Neonatal/Adult Cephalic, Vascular, Musculoskeletal, Superficial Musculoskeletal, and Peripheral Vascular applications.

The system also provides the ability to measure anatomical structures {fetal, abdominal, intraoperative, pediatric, small organ, neonatal cephalic, adult cephalic, cardiac, trans-esophageal, transrectal, transvaginal, peripheral vessel, musculo-skeletal (conventional), musculo-skeletal (superficial) and neonatal cardiac} and calculation packages that provide information to the clinician that may be used adjunctively with other medical data obtained by a physician for clinical diagnosis purposes.

The Arterial Health Package (AHP) software provides the physician with the capability to measure Intima Media Thickness and the option to reference normative tables that have been validated and published in peer-reviewed studies. The information is intended to provide the physician with an easily understood tool for communicating with patients regarding state of their cardiovascular system. This feature should be utilized according to the "ASE Consensus Statement; Use of Carotid Ultrasound to Identify Subclinical Vascular Disease and Evaluate Cardiovascular Disease Risk: A Consensus Statement from the American Association of Echocardiography; Carotid Intima-Media Thickness Task Force, Endorsed by the Society for Vascular Imaging".

The Acuson Acunav Ultrasound Catheter is intended for intra-cardiac and intra-luminal visualization of cardiac and great vessel anatomy and physiology, as well as visualization of other devices in the heart of adult and pediatric patients.

Transducer Indications for Use are on the attached pages.

Type of Use (Select one or both, as applicable)

Prescription Use (Part 21 CFR 801 Subpart D)

Over-The-Counter Use (21 CFR 801 Subpart C)

### CONTINUE ON A SEPARATE PAGE IF NEEDED.

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**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **ACUSON S1000, S2000, S3000 Ultrasound System**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10, 11, 13
Abdominal		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10, 11, 13, 16, 18
Intraoperative (Note 9)		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10, 11, 14
Intraoperative Neurological										
Pediatric		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10, 11
Small Organ (Note 1)		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10, 11,14, 16, 18
Neonatal Cephalic		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10
Adult Cephalic		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10
Cardiac		P	P	P	P	P	P		BMDC	Note 2,3,4,5,6,7,8,10,15
Trans-esophageal		P	P	P	P	P	P		BMDC	Note 4
Transrectal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11,14
Transvaginal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11
Transurethral										
Intravascular										
Peripheral vessel		P	P	P	P	P	P		BMDC	Note 2,3,4,5,6,7,8,10, 11,14,15
Laparoscopic										
Musculo-skeletal Conventional		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10, 11,14, 18
Musculo-skeletal Superficial		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10, 11,14, 18
Other (specify) Neonatal Cardiac		P	P	P	P	P	P		BMDC	Note 3,4,6, 10

N = new indication; P = previously cleared by FDA K152369

Additional Comments:

- Note 1 i.e. breast, testes, thyroid, penis, prostate, etc.
- Note 3 SieClear multi-view spatial compounding
- Note 5 3-Scape real-time 3D imaging
- Note 7 B&W SieScape panoramic imaging
- Note 9 For example: vascular, abdominal
- Note 11 Advanced Sieclear spatial compounding
- Note 14 eSie™ Touch elasticity imaging / FTI
- Note 16 Custom Tissue Imaging
- Note 18 VTI

- Note 2 Ensemble tissue harmonic imaging
- Note 4 Tissue Equalization Technology
- Note 6 Cadence contrast agent imaging
- Note 8 Power SieScape panoramic imaging
- Note 10 Clarify VE vascular enhancement technology
- Note 13 STIC
- Note 15 AHP
- Note 17 eSie Fusion

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **12L4 Transducer for use with ACUSON S1000, S2000 and S3000**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal										
Abdominal										
Intraoperative Abdominal										
Intraoperative Neurological										
Pediatric		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11, 14, 16
Small Organ (Note 1)			P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11, 14, 16
Neonatal Cephalic										
Adult Cephalic										
Cardiac										
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel		P	P	P		P	P		BMDC	Note 2,3,4,5, 7,8,10, 11, 14
Laparoscopic										
Musculo-skeletal Conventional		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11, 14
Musculo-skeletal Superficial										
Other (specify)										

N = new indication; P = previously cleared by FDA K152369

Additional Comments:

- |   |   |
|---|---|
| Note 1 i.e.: breast, testes, thyroid, penis, prostate, etc.         | Note 2 Ensemble tissue harmonic imaging |
| Note 3 SieClear multi-view spatial compounding                      | Note 4 Tissue Equalization Technology   |
| Note 5 3-Scape real-time 3D imaging                                 | Note 6 Cadence contrast agent imaging   |
| Note 7 B&W SieScape panoramic imaging                               | Note 8 Power SieScape panoramic imaging |
| Note 10 Clarify VE vascular enhancement technology compounding/DTCE | Note 11 Advanced Sieclear spatial       |
| Note 14 eSie™ Touch elasticity imaging                              | Note 16 Custom Tissue Imaging /FTI      |

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **CW2 Probe For Use On ACUSON S1000, S2000, S3000 Ultrasound System**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal					P					
Abdominal					P					
Intraoperative (Note 9)					P					
Intraoperative Neurological										
Pediatric					P					
Small Organ (Note 1)					P					
Neonatal Cephalic					P					
Adult Cephalic					P					
Cardiac					P					
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel					P					
Laparoscopic										
Musculo-skeletal Conventional					P					
Musculo-skeletal Superficial					P					
Other (specify)										

N = new indication; P = previously cleared by FDA K152369

Additional Comments:

Note 1 For example: breast, testes, thyroid, penis, prostate, etc.

Note 9 For example: vascular, abdominal

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **CW5 Probe For Use On ACUSON S1000, S2000, S3000 Ultrasound System**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal					P					
Abdominal					P					
Intraoperative (Note 9)					P					
Intraoperative Neurological					P					
Pediatric					P					
Small Organ (Note 1)					P					
Neonatal Cephalic					P					
Adult Cephalic					P					
Cardiac					P					
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel					P					
Laparoscopic										
Musculo-skeletal Conventional					P					
Musculo-skeletal Superficial					P					
Other (specify)										

N = new indication; P = previously cleared by FDA K152369

Additional Comments:

Note 1 For example: breast, testes, thyroid, penis, prostate, etc. abdominal

Note 9 For example: vascular, abdominal

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **6-4 Curved Array Transducer For Use On ACUSON S1000, S2000, S3000 Ultrasound System**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11
Abdominal		P	P	P		P	P		BMDC	Note 2,3,4,5,6,,7,8,10, 11,
Intraoperative										
Intraoperative Neurological										
Pediatric										
Small Organ (Note 1)		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11,14
Neonatal Cephalic		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11
Adult Cephalic										
Cardiac										
Trans-esophageal										
Transrectal		P	P	P		P	P		BMDC	Note 2,3,4,5, 6, 7,8,10, 11,14
Transvaginal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11
Transurethral										
Intravascular										
Peripheral vessel										
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (specify)										

N = new indication; P = previously cleared by FDA K152369

Additional Comments:

- Note 1 i.e.: breast, testes, thyroid, penis, prostate, etc.
- Note 3 SieClear multi-view spatial compounding
- Note 5 3-Scape real-time 3D imaging
- Note 7 B&W SieScape panoramic imaging
- Note 11 Advanced Sieclear spatial compounding
- Note 14 eSie™ Touch elasticity imaging / FTI

- Note 2 Ensemble tissue harmonic imaging
- Note 4 Tissue Equalization Technology
- Note 6 Cadence contrast agent imaging
- Note 8 Power SieScape panoramic imaging
- Note 10 Clarify VE vascular enhancement technology

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Concurrence of Center for Devices and Radiological Health (CDRH)



**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **MC9-4 Curved Array Transducer For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11
Abdominal		P	P	P		P	P		BMDC	Note 2,3,4,5,6,,7,8,10, 11,
Intraoperative Note 9										
Intraoperative Neurological										
Pediatric										
Small Organ (Note 1)		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11,14
Neonatal Cephalic		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10
Adult Cephalic										
Cardiac										
Trans-esophageal										
Transrectal		P	P	P		P	P		BMDC	Note 2,3,4,5, 6, 7,8,10, 11,14
Transvaginal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11
Transurethral										
Intravascular										
Peripheral vessel										
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (specify)										

N = new indication; P = previously cleared by FDA K152369

Additional Comments:

- |  |  |
|--|--|
| Note 1 i.e.: breast, testes, thyroid, penis, prostate, etc | Note 2 Ensemble tissue harmonic imaging      |
| Note 3 SieClear multi-view spatial compounding             | Note 4 Tissue Equalization Technology        |
| Note 5 3-Scape real-time 3D imaging                        | Note 6 Cadence contrast agent imaging        |
| Note 7 B&W SieScape panoramic imaging                      | Note 8 Power SieScape panoramic imaging      |
| Note 9 Abdomen and Vascular technology                     | Note 10 Clarify VE vascular enhancement      |
| Note 11 Advanced Sieclear spatial compounding              | Note 14 eSie™ Touch elasticity imaging / FTI |

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **9L4 Linear Array Transducer For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11
Abdominal										
Intraoperative Note 9										
Intraoperative Neurological										
Pediatric		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11
Small Organ (Note 1)		P	P	P		P	P		BMDC	Note 2,3,4,5,6,7,8,10, 11,14, 16, 18
Neonatal Cephalic		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11
Adult Cephalic		P	P	P		P	P			
Cardiac		P	P	P		P	P		BMDC	Note 15
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel		P	P	P		P	P		BMDC	Note 2,3,4,5,6, 7,8,10, 11, 14,15
Laparoscopic										
Musculo-skeletal Conventional		P	P	P		P	P		BMDC	Note 2,3,4,5,6,7,8,10, 11, 14
Musculo-skeletal Superficial		P	P	P		P	P		BMDC	Note 2,3,4,5,6,7,8,10, 11, 14
Other (specify)										

N = new indication; P = previously cleared by FDA K152369

Additional Comments:

- |   |  |
|---|--|
| Note 1 i.e.: breast, testes, thyroid, penis, prostate, etc. | Note 2 Ensemble tissue harmonic imaging            |
| Note 3 SieClear multi-view spatial compounding              | Note 4 Tissue Equalization Technology              |
| Note 5 3-Scape real-time 3D imaging                         | Note 6 Cadence contrast agent imaging              |
| Note 7 B&W SieScape panoramic imaging                       | Note 8 Power SieScape panoramic imaging            |
| Note 9 Abdomen and Vascular                                 | Note 10 Clarify VE vascular enhancement technology |
| Note 11 Advanced Sieclear spatial compounding               | Note 14 eSie™ Touch elasticity imaging / FTI       |
| Note 15 AHP   | Note 16 Custom Tissue Imaging                      |
| Note 18 VTI (Virtual Touch Imaging)                         |  |

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **14L5 Multi-D Array Transducer For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal										
Abdominal										
Intraoperative Note 9										
Intraoperative Neurological										
Pediatric										
Small Organ (Note 1)		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11, 14, 16
Neonatal Cephalic										
Adult Cephalic										
Cardiac										
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel		P	P	P		P	P		BMDC	Note 2,3,4,5,6, 7,8,10, 11, 14
Laparoscopic										
Musculo-skeletal Conventional		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11, 14
Musculo-skeletal Superficial										
Other (specify)										

N = new indication; P = previously cleared by FDA K152369

Additional Comments:

- Note 1 i.e.: breast, testes, thyroid, penis, prostate, etc.
- Note 2 Ensemble tissue harmonic imaging
- Note 3 SieClear multi-view spatial compounding
- Note 4 Tissue Equalization Technology
- Note 5 3-Scape real-time 3D imaging
- Note 6 Cadence contrast agent imaging
- Note 7 B&W SieScape panoramic imaging
- Note 8 Power SieScape panoramic imaging
- Note 9 Abdomen and Vascular technology
- Note 10 Clarify VE vascular enhancement
- Note 11 Advanced Sieclear spatial compounding
- Note 14 eSie™ Touch elasticity imaging / FTI
- Note 16 Custom Tissue Imaging
- Note 18 Virtual Touch Imaging

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **4P1 Phased Array Transducer For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10
Abdominal		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10
Intraoperative Note 9										
Intraoperative Neurological										
Pediatric										
Small Organ										
Neonatal Cephalic										
Adult Cephalic		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10
Cardiac		P	P	P	P	P	P		BMDC	Note 2,3,4,5,6,7,8,10
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel										
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (specify)										

N = new indication; P = previously cleared by FDA K152369

Additional Comments:

- Note 2 Ensemble tissue harmonic imaging
- Note 3 SieClear multi-view spatial compounding
- Note 4 Tissue Equalization Technology
- Note 5 3-Scape real-time 3D imaging
- Note 6 Cadence contrast agent imaging
- Note 7 B&W SieScape panoramic imaging
- Note 8 Power SieScape panoramic imaging
- Note 9 Abdomen and Vascular
- Note 10 Clarify VE vascular enhancement technology

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Concurrence of Center for Devices and Radiological Health(CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **6C2 Curved Array Transducer For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10,11
Abdominal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10,11, 14, 16, 17
Intraoperative Note 9										
Intraoperative Neurological										
Pediatric		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10,11
Small Organ										
Neonatal Cephalic										
Adult Cephalic										
Cardiac										
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10,11
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (specify)										

N = new indication; P = previously cleared by FDA K152369

Additional Comments:

- |   |  |
|---|--|
| Note 2 Ensemble tissue harmonic imaging       | Note 3 SieClear multi-view spatial compounding     |
| Note 4 Tissue Equalization Technology         | Note 5 3-Scape real-time 3D imaging                |
| Note 7 B&W SieScape panoramic imaging         | Note 8 Power SieScape panoramic imaging            |
| Note 9 Abdomen and Vascular                   | Note 10 Clarify VE vascular enhancement technology |
| Note 11 Advanced Sieclear spatial compounding | Note 14 eSie™ Touch elasticity imaging / FTI       |
| Note 16 Custom Tissue Imaging                 | Note 17 eSie Fusion                                |

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\_\_\_\_\_  
 Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **4C1 Curved Array Transducer For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10, 11
Abdominal		P	P	P	P	P	P		BMDC	Note 2,3,4,5,6,7,8, 10, 11, 14, 16, 17, 18
Intraoperative Note 9										
Intraoperative Neurological										
Pediatric										
Small Organ		P	P	P	P	P	P		BMDC	
Neonatal Cephalic										
Adult Cephalic										
Cardiac		P	P	P	P	P	P		BMDC	
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel		P	P	P	P	P	P		BMDC	
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (specify)										

N = new indication; P = previously cleared by FDA K152369

Additional Comments:

- |  |  |
|--|--|
| Note 2 Ensemble tissue harmonic imaging                        | Note 3 SieClear multi-view spatial compounding |
| Note 4 Tissue Equalization Technology                          | Note 5 3-Scape real-time 3D imaging            |
| Note 6 Cadence contrast agent imaging                          | Note 7 B&W SieScape panoramic imaging          |
| Note 8 Power SieScape panoramic imaging                        | Note 9 Abdomen and Vascular                    |
| Note 10 Clarify VE vascular enhancement technology compounding | Note 11 Advanced Sieclear spatial              |
| Note 14 eSie™ Touch elasticity imaging / FTI                   | Note 16 Custom Tissue Imaging                  |
| Note 17 eSie Fusion  | Note 18 VTI                                    |

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\_\_\_\_\_  
 Concurrence of Center for Devices and Radiological Health (CDRH) (Signature)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **6C1HD Curved Array Transducer For Use On ACUSON S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10,11
Abdominal		P	P	P	P	P	P		BMDC	Note 2,3,4,5,6,7,8,10,11,14,16,17,18
Intraoperative Note 9										
Intraoperative Neurological										
Pediatric										
Small Organ		P	P	P	P	P	P		BMDC	
Neonatal Cephalic										
Adult Cephalic										
Cardiac		P	P	P	P	P	P		BMDC	
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel		P	P	P	P	P	P		BMDC	
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (specify)										

N = new indication; P = previously cleared by FDA K152369

Additional Comments:

- |  |  |
|--|--|
| Note 2 Ensemble tissue harmonic imaging                        | Note 3 SieClear multi-view spatial compounding |
| Note 4 Tissue Equalization Technology                          | Note 5 3-Scape real-time 3D imaging            |
| Note 6 Cadence contrast agent imaging                          | Note 7 B&W SieScape panoramic imaging          |
| Note 8 Power SieScape panoramic imaging                        | Note 9 Abdomen and Vascular                    |
| Note 10 Clarify VE vascular enhancement technology compounding | Note 11 Advanced Sieclear spatial compounding  |
| Note 14 eSie™ Touch elasticity imaging / FTI                   | Note 16 Custom Tissue Imaging                  |
| Note 17 eSie Fusion  | Note 18 VTI                                    |

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **8C3HD Curved Array Transducer For Use On ACUSON S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11
Abdominal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11, 14, 16
Intraoperative Note 9										
Intraoperative Neurological										
Pediatric		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11
Small Organ		P	P	P		P	P		BMDC	
Neonatal Cephalic										
Adult Cephalic										
Cardiac										
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (specify)										

N = new indication; P = previously cleared by FDA K152369

Additional Comments:

- Note 2 Ensemble tissue harmonic imaging
- Note 3 SieClear multi-view spatial compounding
- Note 4 Tissue Equalization Technology
- Note 5 3-Scape real-time 3D imaging
- Note 6 Cadence contrast agent imaging
- Note 7 B&W SieScape panoramic imaging
- Note 8 Power SieScape panoramic imaging
- Note 10 Clarify VE vascular enhancement technology
- Note 11 Advanced Sieclear spatial compounding
- Note 14 eSie™ Touch elasticity imaging / FTI
- Note 16 Custom Tissue Imaging

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Concurrence of Center for Devices and Radiological Health (CDRH)



**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **4V1 Phased Array Transducer For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10
Abdominal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 14, 16, 17
Intraoperative										
Intraoperative Neurological										
Pediatric										
Small Organ										
Neonatal Cephalic										
Adult Cephalic										
Cardiac										
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel										
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (specify)										

N = new indication; P = previously cleared by FDA K40959

Additional Comments:

- Note 2 Ensemble tissue harmonic imaging
- Note 3 SieClear multi view spatial compounding
- Note 4 Tissue Equalization Technology
- Note 5 3-Scape real-time 3D imaging
- Note 7 B&W SieScape panoramic imaging
- Note 8 Power SieScape panoramic imaging
- Note 10 Clarify VE vascular enhancement technology
- Note 11 Advanced Sieclear spatial compounding
- Note 14 eSie™ Touch elasticity imaging / FTI
- Note 16 Custom Tissue Imaging
- Note 17 eSie Fusion

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **10V4 Phased Array Transducer For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10
Abdominal		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10
Intraoperative										
Intraoperative Neurological										
Pediatric		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10
Small Organ										
Neonatal Cephalic		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10
Adult Cephalic										
Cardiac		P	P	P	P	P	P		BMDC	Note 3,4
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (specify)										

N = new indication; P = previously cleared by FDA K# 140959

Additional Comments:

- Note 2 Ensemble tissue harmonic imaging
- Note 3 SieClear multi view spatial compounding
- Note 4 Tissue Equalization Technology
- Note 5 3-Scape real-time 3D imaging
- Note 7 B&W SieScape panoramic imaging
- Note 8 Power SieScape panoramic imaging
- Note 10 Clarify VE vascular enhancement technology

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **14L5 SP Linear Array Transducer** For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems

Indications For Use: Diagnostic imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal										
Abdominal										
Intraoperative (Note 9)		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10,11
Intraoperative Neurological										
Pediatric										
Small Organ (Note 1)		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10,11,14, 16
Neonatal Cephalic										
Adult Cephalic										
Cardiac		P	P	P		P	P		BMDC	Note 15
Transesophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel		P	P	P		P	P		BMDC	Note 2,3,4,5,6,7,8,10, 11,14,15
Laparoscopic										
Musculo-skeletal Conventional		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10,11,14
Musculo-skeletal Superficial										
Other (specify)										

N = new indication; P = previously cleared by FDA K# 140959

Additional Comments:

Note 1 i.e.: breast, testes, thyroid, penis, prostate, etc. Note 2 Ensemble tissue harmonic imaging

Note 3 SieClear multi-view spatial compounding

Note 4 Tissue Equalization Technology

Note 5 3-Scape real-time 3D imaging

Note 6 Cadence contrast agent imaging

Note 7 B&W SieScape panoramic imaging

Note 8 Power SieScape panoramic imaging

Note 9 For example: vascular, abdominal technology

Note 10 Clarify VE vascular enhancement

Note 11 Advanced Sieclear spatial compounding

Note 14 eSie™ Touch elasticity imaging / FTI

Note 15 AHP

Note 16 Custom Tissue Imaging

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **7CF2 Curved array mechanical 3D transducer For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11,13
Abdominal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11, 13
Intraoperative										
Intraoperative Neurological										
Pediatric										
Small Organ										
Neonatal Cephalic										
Adult Cephalic										
Cardiac										
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel										
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (specify)										

N = new indication; P = previously cleared by FDA K# 140959

Additional Comments:

- Note 2 Ensemble tissue harmonic imaging
- Note 3 SieClear multi-view spatial compounding
- Note 4 Tissue Equalization Technology
- Note 5 3-Scape real-time 3D imaging
- Note 7 B&W SieScape panoramic imaging
- Note 8 Power SieScape panoramic imaging
- Note 10 Clarify VE vascular enhancement technology
- Note 11 Advanced Sieclear spatial compounding
- Note 13 STIC

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **7CF1 Curved array mechanical 3D transducer For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10,11,13
Abdominal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10,11,13
Intraoperative										
Intraoperative Neurological										
Pediatric										
Small Organ										
Neonatal Cephalic										
Adult Cephalic										
Cardiac										
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel										
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (specify)										

N = new indication; P = previously cleared by FDA K# 140959

Additional Comments:

- Note 2 Ensemble tissue harmonic imaging
- Note 3 SieClear multi-view spatial compounding
- Note 4 Tissue Equalization Technology
- Note 5 3-Scape real-time 3D imaging
- Note 7 B&W SieScape panoramic imaging
- Note 8 Power SieScape panoramic imaging
- Note 10 Clarify VE vascular enhancement technology
- Note 11 Advanced Sieclear spatial compounding
- Note 13 STIC

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **9EVF4 Curved Array Transducer For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8, 10,11, 13
Abdominal										
Intraoperative										
Intraoperative Neurological										
Pediatric										
Small Organ										
Neonatal Cephalic		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8, 10,11
Adult Cephalic										
Cardiac										
Trans-esophageal										
Transrectal										
Transvaginal		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8, 10,11
Transurethral										
Intravascular										
Peripheral vessel										
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (specify)										

N = new indication; P = previously cleared by FDA K# 140959

Additional Comments:

- Note 2 Ensemble tissue harmonic imaging
- Note 3 SieClear multi-view spatial compounding
- Note 4 Tissue Equalization Technology
- Note 5 3-Scape real-time 3D imaging
- Note 7 B&W SieScape panoramic imaging
- Note 8 Power SieScape panoramic imaging
- Note 10 Clarify VE vascular enhancement technology
- Note 11 Advanced Sieclear spatial compounding
- Note 13 STIC

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **V5Ms Multiplane TEE Transducer For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal										
Abdominal										
Intraoperative										
Intraoperative Neurological										
Pediatric										
Small Organ										
Neonatal Cephalic										
Adult Cephalic										
Cardiac										
Trans-esophageal		P	P	P	P	P	P		BMDC	Note 4
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel										
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (specify)										

N = new indication; P = previously cleared by FDA K# 140959

Additional Comments:

Note 4 Tissue Equalization Technology

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **18L6 HD Linear Array Transducer For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal										
Abdominal										
Intraoperative										
Intraoperative Neurological										
Pediatric										
Small Organ (Note 1)		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11,14, 16
Neonatal Cephalic										
Adult Cephalic										
Cardiac		P	P	P		P	P		BMDC	Note 15
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11,14,15
Laparoscopic										
Musculo-skeletal Conventional		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11,14
Musculo-skeletal Superficial		P	P	P		P	P		BMDC	Note 2,3,4,5,7,8,10, 11,14
Other (specify)										

N = new indication; P = previously cleared by FDA K081148, K082142, K090334, K093812, K111674, K121138

Additional Comments:

- |   |  |
|---|--|
| Note 1 i.e.: breast, testes, thyroid, penis, prostate, etc. | Note 2 Ensemble tissue harmonic imaging            |
| Note 3 SieClear multi-view spatial compounding              | Note 4 Tissue Equalization Technology              |
| Note 5 3-Scape real-time 3D imaging                         | Note 7 B&W SieScape panoramic imaging              |
| Note 8 Power SieScape panoramic imaging                     | Note 10 Clarify VE vascular enhancement technology |
| Note 11 Advanced Sieclear spatial compounding               | Note 14 eSie™ Touch elasticity imaging             |
| Note 15AHP  | Note 16 Custom Tissue Imaging/FTI                  |

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Concurrence of Center for Devices and Radiological Health (CDRH)



**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **8V3 Phased Array Transducer For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10
Abdominal										
Intraoperative										
Intraoperative Neurological										
Pediatric		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10
Small Organ										
Neonatal Cephalic		P	P	P	P	P	P		BMDC	Note 2,3,4,5,7,8,10
Adult Cephalic										
Cardiac		P	P	P	P	P	P		BMDC	Note 3,4,6
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel										
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (specify) Neonatal Cardiac		P	P	P	P	P	P		BMDC	Note 3,4,6

N = new indication; P = previously cleared by FDA K# 140959

Additional Comments:

- Note 2 Ensemble tissue harmonic imaging
- Note 3 SieClear multi-view spatial compounding
- Note 4 Tissue Equalization Technology
- Note 5 3-Scape real-time 3D imaging
- Note 6 Cadence contrast agent imaging
- Note 7 B&W SieScape panoramic imaging
- Note 8 Power SieScape panoramic imaging
- Note 10 Clarify VE vascular enhancement technology

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **4V1c Phased Array Transducer For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10
Abdominal		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10
Intraoperative		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10
Intraoperative Neurological		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10
Pediatric		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10
Small Organ										
Neonatal Cephalic										
Adult Cephalic		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10
Cardiac		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10 15
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10 15
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (specify) Neonatal Cardiac		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10

N = new indication; P = previously cleared by FDA K#'s 140959

Additional Comments:

- Note 2 Ensemble tissue harmonic imaging
- Note 3 SieClear multi-view spatial compounding
- Note 4 Tissue Equalization Technology
- Note 5 3-Scape real-time 3D imaging
- Note 6 Cadence contrast agent imaging
- Note 7 B&W SieScape panoramic imaging
- Note 8 Power SieScape panoramic imaging
- Note 10 Clarify VE vascular enhancement technology
- Note 15 AHP

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **6L3 Transducer For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10, 11
Abdominal										
Intraoperative Note 9		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10, 11
Intraoperative Neurological										
Pediatric										
Small Organ		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10, 11
Neonatal Cephalic										
Adult Cephalic										
Cardiac		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10 15
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intravascular										
Peripheral vessel		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10, 11 15
Laparoscopic										
Musculo-skeletal Conventional		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10, 11
Musculo-skeletal Superficial		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10, 11
Other (specify)										

N = new indication; P = previously cleared by FDA K#s140959

Additional Comments:

- Note 2 Ensemble tissue harmonic imaging
- Note 3 SieClear multi-view spatial compounding
- Note 4 Tissue Equalization Technology
- Note 5 3-Scape real-time 3D imaging
- Note 6 Cadence contrast agent imaging
- Note 7 B&W SieScape panoramic imaging
- Note 8 Power SieScape panoramic imaging
- Note 10 Clarify VE vascular enhancement technology
- Note 11 Advanced Sieclear spatial compounding
- Note 15 AHP

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **EV-8C4 Transducer For Use On ACUSON S1000, S2000, S3000  
 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Amplitude Doppler	Color Velocity Imaging	Combined (Specify)	Other (Specify)
Ophthalmic										
Fetal		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10
Abdominal		P	P	P	P	P	P		BMDC	Note 2 3 4 5 7 8 10
Intraoperative										
Pediatric										
Small Organ										
Neonatal Cephalic										
Adult Cephalic										
Cardiac										
Trans-esophageal										
Transrectal										
Transvaginal		P	P	P	P	P	P		BMDC	Note 2 3 4 5 6 7 8 10
Transurethral										
Intravascular										
Peripheral vessel										
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (specify)										

N = new indication; P = previously cleared by FDA K#'s 140959

Additional Comments:

- Note 2 Ensemble tissue harmonic imaging
- Note 3 SieClear multi-view spatial compounding
- Note 4 Tissue Equalization Technology
- Note 5 3-Scape real-time 3D imaging
- Note 6 Cadence contrast agent imaging
- Note 7 B&W SieScape panoramic imaging
- Note 8 Power SieScape panoramic imaging
- Note 10 Clarify VE vascular enhancement technology

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **V7M TEE Transducer For Use On ACUSON S1000, S2000, S3000  
 Ultrasound Systems**

Intended Use: Ultrasound imaging or fluid flow analysis of the human body as follows:

Clinical Application	Mode of Operation										
	A	B	M	PWD	CWD	Color Doppler	Power (Amplitude) Doppler	Color Velocity Imaging	Combined (Specify) *	Harmonic Imaging	Other (Specify)
Ophthalmic											
Fetal											
Abdominal		P	P	P	P	P	P		P	P	Note 4
Intraoperative											
Intraoperative Neurological											
Pediatric		P	P	P	P	P	P		P	P	Note 4
Small Organ (specify)**											
Neonatal Cephalic											
Adult Cephalic											
Cardiac		P	P	P	P	P	P		P	P	Note 4
Trans-esophageal		P	P	P	P	P	P		P	P	Note 4
Transrectal											
Transvaginal											
Transurethral											
Intravascular											
Peripheral Vessel											
Laparoscopic											
Musculo-skeletal (Conventional)											
Musculo-skeletal (Superficial)											
Other (specify)											

P=previously cleared by the FDA under premarket notifications #K152369

Additional Comments:

\*Combinations include: B+M, B+PWD, B+CWD, B+Color Doppler, B+M+ Color Doppler, B+PWD+Color Doppler, B+CWD+Color Doppler, B+Power Doppler, B+M+Power Doppler, B+PWD+Power Doppler, B+CWD+Power Doppler, B+Clarify VE

Note 2 Ensemble tissue harmonic imaging

Note 4 Tissue Equalization Technology

Note 10 Clarify VE vascular enhancement technology

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name: **AcuNav 8F Ultrasound Catheter For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use: The AcuNav™ Ultrasound Catheter is intended for intra-cardiac and intraluminal visualization of cardiac and great vessel anatomy and physiology as well as visualization of other devices in the heart of adult and pediatric patients.

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Power (Amplitude) Doppler	Color Velocity Imaging	Combined (Specify) *	Other: Harmonic Imaging
Ophthalmic										
Fetal										
Abdominal										
Intraoperative (Vascular)										
Intraoperative (Neurological)										
Pediatric		P	P	P	P	P	P		P	
Small Organ (Specify)**										
Neonatal Cephalic										
Adult Cephalic										
Cardiac		P	P	P	P	P	P		P	
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intra-Luminal		P	P	P	P	P	P		P	
Peripheral Vessel										
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (Intra-Cardiac)		P	P	P	P	P	P		P	

P=previously cleared by the FDA K152369

Additional Comments:

\*Combinations include: B+M, B+PWD, B+CWD, B+Color Doppler, B+M+ Color Doppler, B+PWD+Color Doppler, B+CWD+Color Doppler, B+Power Doppler, B+M+Power Doppler, B+PWD+Power Doppler, B+CWD+Power Doppler

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Concurrence of Center for Devices and Radiological Health (CDRH)

**Diagnostic Ultrasound Indications for Use Form**

510 (k) Number (if known): \_\_\_\_\_

Device Name:

**AcuNav 10F Ultrasound Catheter For Use On ACUSON S1000, S2000, S3000 Ultrasound Systems**

Intended Use:

The AcuNav™ Ultrasound Catheter is intended for intra-cardiac and intraluminal visualization of cardiac and great vessel anatomy and physiology as well as visualization of other devices in the heart of adult and pediatric patients.

Clinical Application	Mode of Operation									
	A	B	M	PWD	CWD	Color Doppler	Power (Amplitude) Doppler	Color Velocity Imaging	Combined (Specify) *	Other: Harmonic Imaging
Ophthalmic										
Fetal										
Abdominal										
Intraoperative (Vascular)										
Intraoperative (Neurological)										
Pediatric		P	P	P	P	P	P		P	
Small Organ (Specify)**										
Neonatal Cephalic										
Adult Cephalic										
Cardiac		P	P	P	P	P	P		P	
Trans-esophageal										
Transrectal										
Transvaginal										
Transurethral										
Intra-Luminal		P	P	P	P	P	P		P	
Peripheral Vessel										
Laparoscopic										
Musculo-skeletal Conventional										
Musculo-skeletal Superficial										
Other (Intra-Cardiac)		P	P	P	P	P	P		P	

P=Previously cleared by the FDA K152369

Additional Comments:

\*Combinations include: B+M, B+PWD, B+CWD, B+Color Doppler, B+M+ Colo Doppler, B+PWD+Color Doppler, B+CWD+Color Doppler, B+Power Doppler, B+M+Power Doppler, B+PWD+Power Doppler, B+CWD+Power Doppler

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 Concurrence of Center for Devices and Radiological Health (CDRH)

## 510(k) Summary

July 23, 2016

**1. Sponsor:** Siemens Medical Solutions, Inc.,  
Ultrasound Division  
685 East Middlefield Road  
Mountain View, California 94043

Contact Person: Shelly Pearce  
Telephone: (650) 279-0134

**2. Device Name:** Acuson S1000, S2000, S3000™ Diagnostic Ultrasound Systems

May also be marketed as:  
ACUSON Oxana 1 Ultrasound System  
ACUSON Oxana 2 Ultrasound System  
ACUSON Oxana 3 Ultrasound System  
ACUSON Oxana 2 Ultrasound Automated Breast Volume Scanner  
(ACUSON Oxana 2 ABVS)  
ACUSON Ultrasound Automated Breast Volume Scanner  
(ACUSON ABVS)

**Common Name:** Diagnostic Ultrasound System

**Classification:**

Regulatory Class: II  
Review Category: Tier II  
Classification Panel: Radiology

Ultrasonic Pulsed Doppler Imaging System	FR # 892.1550
Product Code 90-IYN	
Ultrasonic Pulsed Echo Imaging System	FR # 892.1560
Product Code 90-IYO	
Diagnostic Ultrasound Transducer	FR # 892.1570
Product Code 90-ITX	
Diagnostic Ultrasound Catheter	FR # 870.1200
Product Code OBJ	

**Manufacturing Site:**

Siemens Medical Solutions USA, Inc.,  
2500 Millbrook Drive, Suite B  
Mountain View, California 94043  
Buffalo Grove, IL 60089

### 3. Legally Marketed Predicate Devices

The modified Acuson S1000, S2000, S3000 Ultrasound Systems are substantially equivalent to the company's own systems:



System	510(k)
S1000	K152369
S2000	K152369
S3000	K152369

#### 4. Device Description:

The ultrasound systems are multi-purpose mobile, software controlled diagnostic ultrasound systems with and on-screen display for thermal and mechanical indices related to potential bio-effect mechanisms. The function is to acquire primary or secondary harmonic ultrasound echo data and display it in B-Mode, M-Mode, Pulsed (PW) Doppler Mode, Continuous (CW) Doppler Mode, Color Doppler Mode, Amplitude, Doppler Mode, a combination of modes, or Harmonic Imaging and 3D/4D Imaging on a Flat Panel Display.

#### 5. Intended Use

The ultrasound imaging systems are intended for the following applications: Fetal, Abdominal, Intraoperative, Pediatric, Small Parts, Transcranial, OB/GYN, Cardiac, Pelvic, Neonatal/Adult Cephalic, Vascular, Musculoskeletal, Superficial Musculoskeletal, and Peripheral Vascular applications.

The system also provides the ability to measure anatomical structures {fetal, abdominal, intraoperative, pediatric, small organ, neonatal cephalic, adult cephalic, cardiac, trans-esophageal, transrectal, transvaginal, peripheral vessel, musculo-skeletal (conventional), musculo-skeletal (superficial) and neonatal cardiac} and calculation packages that provide information to the clinician that may be used adjunctively with other medical data obtained by a physician for clinical diagnosis purposes.

The Arterial Health Package (AHP) software provides the physician with the capability to measure Intima Media Thickness and the option to reference normative tables that have been validated and published in peer-reviewed studies. The information is intended to provide the physician with an easily understood tool for communicating with patients regarding state of their cardiovascular system. This feature should be utilized according to the "ASE Consensus Statement; Use of Carotid Ultrasound to Identify Subclinical Vascular Disease and Evaluate Cardiovascular Disease Risk: A Consensus Statement from the American Association of Echocardiography; Carotid Intima-Media Thickness Task Force, Endorsed by the Society for Vascular Imaging".

The Acuson Acunav Ultrasound Catheter is intended for intra-cardiac and intra-luminal visualization of cardiac and great vessel anatomy and physiology, as well as visualization of other devices in the heart of adult and pediatric patients.

#### 6. Summary of Technological Characteristics

The modified Acuson S1000, S2000, S3000 Ultrasound Systems are the same as the company's own previously cleared Acuson S1000, S2000, S3000 Ultrasound Systems (K152369) with regard to both intended use and technological characteristics. Both the subject ultrasound systems and the predicate ultrasound systems function in the same manner as all diagnostic ultrasound systems and transducers.

Feature / Characteristic	Acuson S1000/S2000/S3000 This Submission	Acuson S1000/S2000/S3000 K# 152369
<b>Indications for Use:</b>		
<ul style="list-style-type: none"> <li>▪ Fetal</li> <li>▪ Abdominal</li> <li>▪ Intraoperative</li> <li>▪ Intraoperative neurological</li> <li>▪ Pediatric</li> <li>▪ Small Organ</li> <li>▪ Neonatal cephalic</li> <li>▪ Adult Cephalic</li> <li>▪ Cardiac</li> <li>▪ Trans-esophageal</li> <li>▪ Transrectal</li> <li>▪ Transvaginal</li> <li>▪ Peripheral vessel</li> <li>▪ Laparoscopic</li> <li>▪ Musculo-skeletal (conventional)</li> <li>▪ Musculo-skeletal (superficial)</li> </ul>	<ul style="list-style-type: none"> <li>√</li> <li>√</li> <li>√</li> <li>--</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>--</li> <li>√</li> <li>√</li> </ul>	<ul style="list-style-type: none"> <li>√</li> <li>√</li> <li>√</li> <li>--</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>--</li> <li>√</li> <li>√</li> </ul>
<b>Center Frequencies Supported:</b>		
<ul style="list-style-type: none"> <li>▪ 2.0 MHz</li> <li>▪ 3.0 MHz</li> <li>▪ 3.2 MHz</li> <li>▪ 3.3 MHz</li> <li>▪ 4.2 MHz</li> <li>▪ 4.4 MHz</li> <li>▪ 4.8 MHz</li> <li>▪ 5.0 MHz</li> <li>▪ 5.2 MHz</li> <li>▪ 6.0 MHz</li> <li>▪ 6.5 MHz</li> <li>▪ 6.9 MHz</li> <li>▪ 9.5 MHz</li> <li>▪ 10.0 MHz</li> </ul>	<ul style="list-style-type: none"> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> </ul>	<ul style="list-style-type: none"> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> </ul>
<b>Modes:</b>		
<ul style="list-style-type: none"> <li>▪ B</li> <li>▪ Parallel processing in B mode</li> <li>▪ M</li> <li>▪ PWD (Pulsed Wave Doppler)</li> <li>▪ CWD (Continuous Wave Doppler)</li> <li>▪ D (Color Doppler)</li> <li>▪ Amplitude Doppler</li> <li>▪ Combined (BMDC)</li> </ul>	<ul style="list-style-type: none"> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> </ul>	<ul style="list-style-type: none"> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> <li>√</li> </ul>
<b>Features:</b>		
<ul style="list-style-type: none"> <li>Quad processing in color</li> <li>▪ Native™ tissue harmonic imaging</li> </ul>	<ul style="list-style-type: none"> <li>√</li> <li>√</li> </ul>	<ul style="list-style-type: none"> <li>√</li> <li>√</li> </ul>

Feature / Characteristic	Acuson S1000/S2000/S3000 This Submission	Acuson S1000/S2000/S3000 K# 152369
▪ SieScape™ panoramic imaging	√	√
▪ Color SieScape™ panoramic imaging	√	√
▪ 3-Scape™ real-time 3D imaging	√	√
▪ fourSight™ 4D transducer technology	√	√
▪ TEQ™ ultrasound technology	√	√
▪ Cardiac Imaging physiological signal display	√	√
▪ syngo® Auto OB measurements	√	√
▪ Advanced SieClear™ spatial compounding	√	√
▪ STIC (Fetal Heart Imaging)	√	√
▪ Amnioscopic rendering	√	√
▪ Cadence contrast agent imaging	√	√
▪ Clarify™ vascular enhancement technology	√	√
▪ eSie™ Touch elasticity imaging	√	√
▪ syngo® Auto Left heart	√	√
▪ syngo® Velocity Vector Imaging	√	√
▪ Semi Auto-segmentation (eSie Calc)	√	√
▪ Custom Tissue Imaging / Speed of Sound	√	√
▪ AHP	√	√
▪ eSie Fusion (S3000 only)	√	√
▪ VTI (S2000 & S3000 only)	√	√
Wireless	√	√
Monitor: 21" FPD	√	√
Output Display Standard (Track 3)	√	√
Patient Contact Materials	Tested to ISO 10993-1	Tested to ISO 10993-1
UL 60601-1 Certified	√	√
Indications for Use	√	√

**7. A brief discussion of nonclinical tests submitted, referenced, or relied on in the 510(k) for a determination of substantial equivalence.**

The device has been evaluated for acoustic output, biocompatibility, cleaning and disinfection effectiveness as well as thermal, electrical, electromagnetic and mechanical safety and has been found to conform with applicable medical device safety standards. The system complies with the following voluntary standards:

- UL 60601-1, Safety Requirements for Medical Equipment
- IEC 60601-2-37 Diagnostic Ultrasound Safety Standards
- CSA C22.2 No. 601-1, Safety Requirements for Medical Equipment
- AIUM/NEMA UD-3, Standard for Real Time Display of Thermal and Mechanical Acoustic Output Indices on Diagnostic Ultrasound Equipment
- AIUM/NEMA UD-2, Acoustic Output Measurement Standard for Diagnostic Ultrasound
- 93/42/EEC Medical Devices Directive
- Safety and EMC Requirements for Medical Equipment
  - EN/IEC 60601-1
  - EN/IEC 60601-1-1
  - EN/IEC 60601-1-2
- ISO 10993-1 Biocompatibility

Cleared patient contact materials, electrical and mechanical safety are unchanged. Testing was performed to verify the software release.

**8. A summary discussion of the clinical tests submitted, referenced, or relied on for a determination of substantial equivalence.**

Since the S1000, S2000, S3000 systems in this submission use the same technology and principles as existing devices, clinical studies were not required to support substantial equivalence.

**9. Summary**

Intended uses and other key features are consistent with traditional clinical practice and FDA guidelines. The design and development process of the manufacturer conforms with 21 CFR 820 Quality System Regulation and ISO 13485:2003 quality system standards. The product is designed to conform to applicable medical device safety standards and compliance is verified through independent evaluation with ongoing factory surveillance. Therefore it is the opinion of Siemens Medical that the S1000, S2000 and S3000 systems are substantially equivalent with respect to safety and effectiveness to devices currently cleared for market.