BC Group International Inc.
9415 Gentry Avenue
P.O. Box 25125
St. Louis, MO 63125 USA
314.638.3800
Fax 314.638.3200
www.bcgroupintl.com

Ultrasound Electrical Safety Tester Comparison Sheet

Revision 1 - June 1, 2007

	BC Biomedical ULT-2000 Series			
Feature / Instrument	**BC Biomedical ULT-2010**	**BC Biomedical ULT-2020**	**DALE800 / Fluke Biomedical ULT-800**	**Siemens Medical Solutions/ DALE800A Private Label Product**
Information Source	BC Biomedical Formal Product Specification	BC Biomedical Formal Product Specification	Product User Manual Specification Sheet Fluke Biomedical Website	Product User Manual Specification Sheet Fluke Biomedical Website
Test Voltage User-Adjustable Range	Variable from 90 VAC to 275 VAC in 1-volt increments Accuracy of source voltage: +/- 1% of setting	Variable from 90 VAC to 275 VAC in 1-volt increments Accuracy of source voltage: +/- 1% of setting	Fixed @ 120 VAC Accuracy of source voltage not specified	Fixed @ 120 VAC Accuracy of source voltage not specified
Test Voltage User-Adjustable Frequency	Selectable 50 or 60 Hz	Selectable 50 or 60 Hz	Fixed @ 60 Hz	Fixed @ 60 Hz
Measurement Accuracy	1% of Full Scale - Multiple Ranges Range: 0.5 - 10 ua Range: 10 - 250 ua Range: 250 - 500 ua	1% of Full Scale - Multiple Ranges Range: 0.5 - 10 ua Range: 10 - 250 ua Range: 250 - 500 ua	Not Specified	Not Specified
Operating Modes	Two Operating Modes 1) Quantitative - displays actual test limits & readings 2) Pass/Fail - displays "Pass" or "Fail" test results	Three Operating Modes 1) Quantitative - displays actual test limits & readings 2) Pass/Fail - displays "Pass" or "Fail" test results 3) Real-time Metering Mode outputs user-selected voltage level and constantly displays leakage current readings	Single Mode Operation Pass / Fail LED indication only	Single Mode Operation Pass / Fail LED indication only
Low Battery Indicator	Battery Meter shows % of battery charge remaining (1 to 100%)	Battery Meter shows % of battery charge remaining (1 to 100%)	LOW BAT LED flashes red to indicate that battery needs replacement	LOW BAT LED flashes red to indicate that battery needs replacement
Power-On Self Test	Yes A self-test is performed at power-up. Then, as part of each individual leakage current test, a source voltage test and an internal circuitry test are performed.	Yes A self-test is performed at power-up. Then, as part of each individual leakage current test, a source voltage test and an internal circuitry test are performed.	Yes On power-up, all four LED's flash in sequence, continuing for five cycles. The READY LED glows amber when the self-test routine completes with a successful battery test.	Yes On power-up, all four LED's flash in sequence, continuing for five cycles. The READY LED glows amber when the self-test routine completes with a successful battery test.
User Configurable	Yes	Yes	No	No
User adjustable test limits	Yes	Yes	No	No

BC Group International Inc.
9415 Gentry Avenue
P.O. Box 25125
St. Louis, MO 63125 USA
314.638.3800
Fax 314.638.3200
www.bcgroupintl.com

Feature / Instrument	BC Biomedical ULT-2010	BC Biomedical ULT-2020	DALE800 / Fluke Biomedical ULT-800	Siemens Medical Solutions/ DALE800A Private Label Product
Current Source & Current Measurement Range	Maximum source current: 500 ua Leakage current measurement range: 0.5 ua to 500 ua Accuracy: 1% of Full Scale - Multiple Ranges Range: 0.5 - 10 ua Range: 10 - 250 ua Range: 250 - 500 ua	Maximum source current: 500 ua Leakage current measurement range: 0.5 ua to 500 ua Accuracy: 1% of Full Scale - Multiple Ranges Range: 0.5 - 10 ua Range: 10 - 250 ua Range: 250 - 500 ua	Maximum source current and maximum measurement range are not specified by manufacturer This instrument conducts a much less aggressive conductivity test then the BC Biomedical ULT-2000 Series	Maximum source current and maximum measurement range are not specified by manufacturer This instrument conducts a much less aggressive conductivity test then the BC Biomedical ULT-2000 Series
Bath Conductivity Test	Measures bath conductivity via dual conductivity probe at minimum selectable voltage (90 VAC) and must be able to conduct the maximum current (500 ua) in order to pass bath conductivity test This test covers the worst case scenario and ensures there will be sufficient bath conductivity to make the resistance of the bath negligible as compared to the transducer being tested, even in the case of an extreme electrical leakage condition.	Measures bath conductivity via dual conductivity probe at minimum selectable voltage (90 VAC) and must be able to conduct the maximum current (500 ua) in order to pass bath conductivity test This test covers the worst case scenario and ensures there will be sufficient bath conductivity to make the resistance of the bath negligible as compared to the transducer being tested, even in the case of an extreme electrical leakage condition.	Multiple Scenarios Original Dale Technology DALE800 brand production level units measure bath conductivity via dual conductivity probe at fixed 120 VAC - fixed Pass/Fail limit at 133 ua + 1% (conductivity must exceed this level) Current Fluke Biomedical ULT-800 brand production level units measure bath conductivity via dual conductivity probe at fixed 120 VAC - fixed Pass/Fail limit at 250 ua +/- 5%	Measures bath conductivity via dual conductivity probe at fixed 120 VAC - fixed Pass/Fail limit at 246 ua +/- 10 ua (conductivity must exceed this level)
Tests both upper and lower leakage current limits	Yes Actual limits can be programmed by the user Default limits supplied in a manufacturer & model on-board database Limits can be specific to a manufacturer & model of transducer Manufacturer specified limits database (actual data from the OEM) is supplied	Yes Actual limits can be programmed by the user Default limits supplied in a manufacturer & model on-board database Limits can be specific to a manufacturer & model of transducer Manufacturer specified limits database (actual data from the OEM) is supplied	Conditional / Multiple Scenarios All Dale Technology DALE800 brand production level units have a fixed upper limit of 100 ua Early Dale Technology DALE800 brand production level units (prior to about 2003) did not utilize a lower leakage current limit and would "Pass" for anything less than the 100 ua upper limit. There was no assurance that a probe was attached. Later Dale Technology production units (after about 2003) had a fixed 20 ua lower limit to validate the presence of a probe. Current Fluke Biomedical ULT-800 product data sheet says that production level units have a fixed upper limit of 185 ua + 1% and a fixed lower limit of 20 ua + 1% Current Fluke Biomedical ULT-800 product manual says that production level units have a fixed upper limit of 100 ua +/- 5% and a fixed lower limit of 20 ua +/- 5%	Yes Fixed lower limit of 40 ua +/- 10 ua Fixed upper limit of 185 ua +/= 2 ua

BC Group International Inc.
9415 Gentry Avenue
P.O. Box 25125
St. Louis, MO 63125 USA
314.638.3800
Fax 314.638.3200
www.bcgroupintl.com

Feature / Instrument	BC Biomedical ULT-2010	BC Biomedical ULT-2020	DALE800 / Fluke Biomedical ULT-800	Siemens Medical Solutions/ DALE800A Private Label Product
Manufacturer & Model specific database	Yes Database contains fields for manufacturer name, probe model, lower current limit, upper current limit, test voltage, and test voltage frequency User configurable database and manufacturer supplied database included	Yes Database contains fields for manufacturer name, probe model, lower current limit, upper current limit, test voltage, and test voltage frequency User configurable database and manufacturer supplied database included	No One set of fixed limits applies to all transducers tested at the single fixed value 120 VAC source voltage	No One set of fixed limits applies to all transducers tested at the single fixed value 120 VAC source voltage
Clock & Calendar Function - time & date stamp test results	Yes	Yes	No	No
Communications Ports	Yes - RS232 bi-directional	Yes - RS232 bi-directional	No	No
Print Test Results	Yes	Yes	No	No
Flash Upgradeable for easy field updates	Yes - via BC Biomedical Flash Update PC Utility Software	Yes - via BC Biomedical Flash Update PC Utility Software	No	No
PC Utility Software	Yes Support multiple functions, including creation and editing of user-defined probe database	Yes Support multiple functions, including creation and editing of user-defined probe database, remote operation, data download and logging, etc.	No	No
Battery / Line Power Operation	Yes Single 9-volt battery operation with optional line power adapter	Yes Single 9-volt battery operation with optional line power adapter	No - battery only	No - battery only
Typical Battery Life	Approx 20 hours of operation	Approx 20 hours of operation (non metering mode)	Approx 1000 tests on a single 9-volt battery	Approx 1000 tests on a single 9-volt battery
Compatibility with Dale Technology / Fluke Biomedical Adapters	Yes	Yes	Yes	Yes
Instrument Display	Large 128 x 64 pixel LCD Graphical Display with High Intensity Programmable Duration Backlighting	Large 128 x 64 pixel LCD Graphical Display with High Intensity Programmable Duration Backlighting	None - LED's Only	None - LED's Only
On-board storage for test results	Optional - upgrade to ULT-2020 level	Yes - Standard Store up to 99 sets of test results, together with limits and test status for each User can print results for any record directly form instrument of export all test results to PC Utility Software program.	No	No
Real-time metering mode	Optional - upgrade to ULT-2020 level	Yes - Standard Allows real-time leakage current readings in a continuous testing mode at user-specified test voltage and frequency	No	No
Size	7.09" x 3.94" x 1.56"	7.09" x 3.94" x 1.56"	6.5" x 3.7" x 1.5"	6.5" x 3.7" x 1.5"
Weight	< 1.5 lbs	< 1.5 lbs	.75 lbs	.75 lbs
First introduced to market (year)	2007	2007	Prior to 1999	Prior to 1999
Manufactured in (country)	USA	USA	USA	USA

BC Group International Inc.
9415 Gentry Avenue
P.O. Box 25125
St. Louis, MO 63125 USA
314.638.3800
Fax 314.638.3200
www.bcgroupintl.com

Feature / Instrument	BC Biomedical ULT-2010	BC Biomedical ULT-2020	DALE800 / Fluke Biomedical ULT-800	Siemens Medical Solutions/ DALE800A Private Label Product
Ultrasound adapter cost range	$385	$385	$ 414 to $ 595	Unknown - Siemens Private Label product manufactured by Fluke Biomedical and sold to Siemens Medical Solutions for re-sale to Siemens customers.
Cidex compatible soak tray available	Yes Cost = $ 295	Yes Cost = $ 295	Yes Cost = $ 331	End-User Cost Unknown
Generic soak tray available (not Cidex compatible)	Yes Cost = $ 100	Yes Cost = $ 100	No	No
Turn-key test kits available	Yes	Yes	Yes	Yes
Accessory printer available	Yes	Yes	No	No
US List Price	**$850**	**$1,050**	**$893**	End-User Cost Unknown Siemens Private Label product manufactured by Fluke Biomedical and sold to Siemens Medical Solutions for re-sale to Siemens customers.