

# AC Impedance Test Report

Test Standard Reference: Standard ANSI/AAMI EC12-2000

Testing Date: 2014-03-14

Model No.:

Manufacturing Date:

Testing environment: 21°C, 50% RH

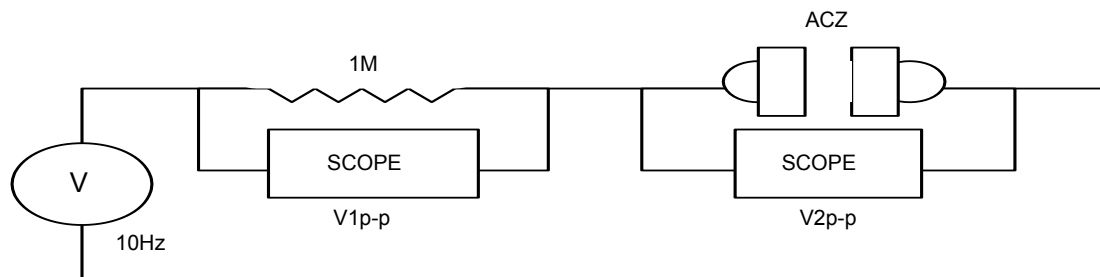
Standard & accessories used:

Nomenclature	Mfg//Model No.	Serial. No	Due Date
Oscillator	GDS-820	D151145	2014/08/24
Multimeter	TES2500	961108003	2014/05/09
Audio Generator	GAG-809	D630815	2014/08/04

Testing Procedure:

- a Applying a sinusoidal current of known amplitude and observing the amplitude of the resulting voltage across the electrodes
- b The magnitude of the impedance is the ratio of the amplitude of the voltage to that of the current.
- c An adequate current generator can be assembled utilizing a sinusoidal signal (voltage) generator with a 1 MΩ resistor in series with the electrode pair. The level of the impressed current should not exceed 100 microamperes p-p.
- d After the electrode pair has been tested for compliance with this requirement, the 10-Hz impedance of the electrode pair shall not exceed 3 kΩ. (as below)

Testing Circuit:



## Result

Unit	Standard	Roscoe Electrode	VitalStim Electrode	Result
# 1	<3 kΩ	0.29 kΩ	3.05 kΩ	Pass* (considering equipment tolerance)
# 2	<3 kΩ	0.27 kΩ	1.82 kΩ	Pass

## DC offset Test Report

Test Standard Reference: Standard ANSI/AAMI EC12-1991

Testing Date: 2014-03-14

Model No.:

Manufacturing Date:

Testing environment: 21°C 50%RH

Standard & Accessories used:

Nomenclature: Multimeter

Mfg//Model No.:TES2500

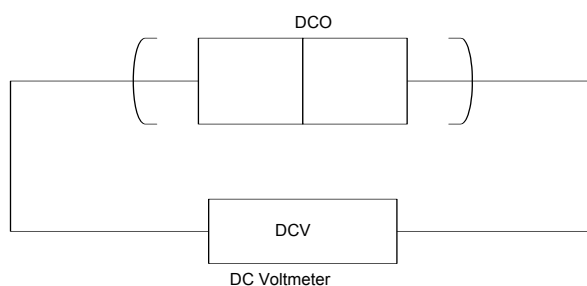
I.D. No.: 961108003

Due Date: 2014/05/09

Testing Procedure:

- a connecting two electrodes gel-to-gel to form a circuit with a dc voltmeter having a minimum input impedance of  $10\text{ M}\Omega$  and a resolution of 1mV or better.
- b The measuring instrument shall apply less than 10nA of bias current to the electrodes under test
- c The measurement shall be made after a 1-min stabilization period, but before 1.5 minutes have elapsed.
- d Exhibit an offset voltage no greater than 100 millivolts (mV)

Testing Circuit:



## Result

Unit	Standard	Roscoe Electrode	VitalStim Electrode	Result
#1	<100 mV	2.7mV	0.29mV	Pass
#2	<100 mV	2.5mV	4.64mV	Pass

# Defibrillation Overload Recovery Test Report

Test Standard Reference: Standard ANSI/AAMI EC12-1991

Testing Date: 2014-03-14

Model No.:

Manufacturing Date:

Testing environment: 21°C 50%RH

Standard & accessories used:

Nomenclature : Multimeter

Mfg//Model No : TES2500

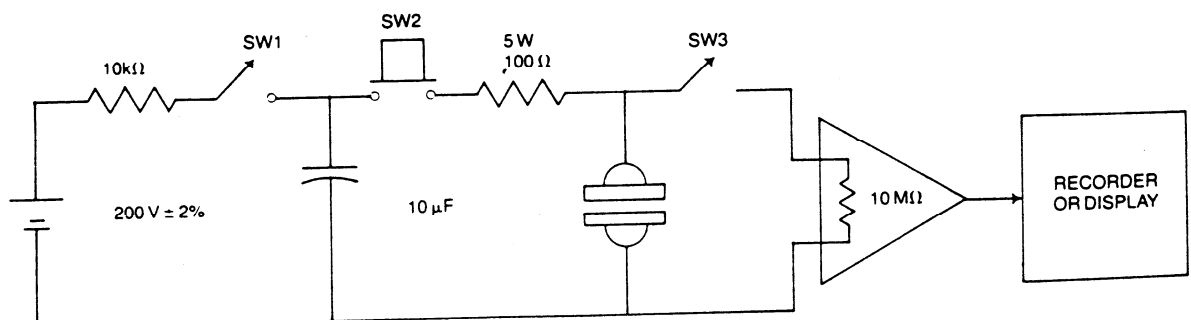
Serial. No : 961108003

Due Date : 2014/05/09

Testing Procedure:

- a A pair of electrodes shall be connected gel-to-gel and joined the test circuit with switch SW1 closed and SW2 and SW3 open;
- b At least 10 seconds must be allowed for the capacitor to fully charge to 200V; switch SW1 is then opened;
- c The capacitor is immediately discharged through the electrode pair by holding switch SW2 closed long enough to discharge the capacitor to less than 2V. (This time shall be no longer than 2 seconds);
- d Switch SW2 is opened and SW3 is closed immediately, thereby connecting the electrode pair to the offset measurement system.
- e The electrode offset is recorded to the nearest 1mv 5 seconds after the closure of switch SW3 and every 10 seconds thereafter for the next 30 seconds.
- f The overload and measurement are repeated three times.
- g The test sequence above is repeated for n electrode pairs. For all electrode pairs tested, the 5-sec offset voltage after each of the four discharges of the capacitor shall not exceed 100mV, and any difference in adjacent 10-sec values (after the initial 5-sec period) shall not exceed  $\pm 11$  mV ( $\pm 1$  mV/sec).

Testing Circuit:



	<b>Standard</b>	<b>5 sec.</b>	<b>15 sec.</b>	<b>25 sec.</b>	<b>35 sec.</b>	<b>Result</b>
<b>Roscoe Electrode # 1</b>	<100mV	12.4 mV	11.7 mV	11.2 mV	10.7 mV	Pass
<b>Roscoe Electrode # 2</b>	<100mV	14.2 mV	12.7 mV	11.5 mV	10.9 mV	Pass
<b>VitalStim Electrode #1</b>	<100mV	26.1 mV	21.5 mV	19.3 mV	17.6 mV	Pass
<b>VitalStim Electrode # 2</b>	<100mV	23.5mV	20.2mV	18.0mV	16.5mV	Pass