Automated External Defibrillator

Operation Manual

 Ver.U23.5

Notices

Limited Warranty

The “Limited Warranty” shipped with our AED products serves as the sole and exclusive warranty provided by our company with respect to the products contained herein.

Our company shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.
Information in this document is subject to change without notice.
Names and data used in the examples are fictitious unless otherwise noted.
For more detailed information regarding the our company AED, please refer to the User Manual.

Contents

This AED Operating Guide is to be used for comprehensive information about our AED.

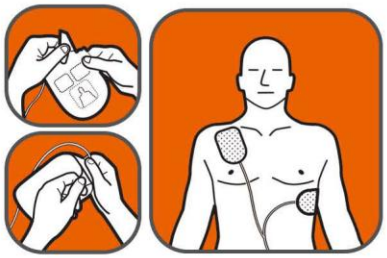
Quick use instructions

PRESS "ON" BUTTON

1

APPLY PADS FOLLOW AED INSTRUCTIONS

2



SELECT ENERGY

3

Pro Type

IF INSTRUCTED, PRESS "SHOCK" BUTTON

4

When to use

WHEN TO USE THE AED

Use the AED when the patient is:

- Unconscious
- Unresponsive
- Not breathing

For patients under 8 years old or less than 55 pounds (25kgs), use child/infant electrode pads. Do not delay therapy to determine exact age or weight.

WHEN NOT TO USE THE AED

The AED should not be used if the patient is:

- Conscious and/or responsive
- Breathing
- Has a detectable pulse

WHO SHOULD USE THE AED

The user should have:

- Defibrillation training as required by local, state, provincial, or national regulations.
- Any additional training as required by the authorizing physician.
- Thorough knowledge and understanding of the material presented in this Operating Guide and in the User Manual.

Diagram of components

FRONT OF AED

BACK OF AED

OPERATING GUIDE BOOKLET

Bag

Pad

BATTERY PACK

Setting up the AED

The AED is designed to be stored in a “ready” state so that few steps are required to begin using the AED.

CONNECT THE PADS TO THE AED 1

Ensure that the pads package has not expired.
Expired pads must not be used.
For more information refer to page 14 of this guide.

INSTALL THE BATTERY PACK 2

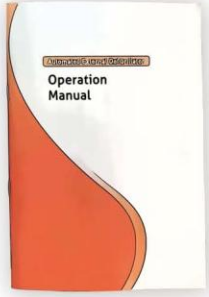
When the battery pack is installed, the AED will turn on and run a battery pack test. Wait for the test to complete and for the unit to turn off.
For more information refer to page 15 of this guide

CHECK THE STATUS 3

When the AED is off, the Active Status Indicator (ASI) will be off, and when the AED is ON the Active Status Indicator (ASI) will be solid green.

For more information refer to page 20 of this guide.

READ THE USER MANUAL 4



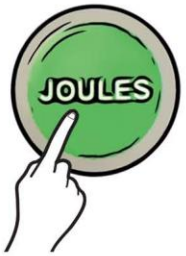
Comprehensive information about the our company AED is found in the User Manual.

Volume

1

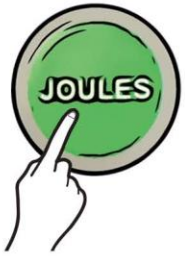
Press ON/OFF button and
joules button together

2



Press Joules button to select
the volume level (5 levels)

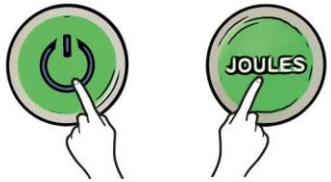
3



Long press on Joules button to set the
choosed level and go to the language choice

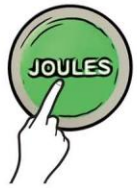
Language

1



Press ON/OFF button and
joules button together

2



Long press on joules button

3

2. After the Long press on Joule button and LED 1/2 flashes
3. Press on Joule button once for the first language,
pressing it again will switch to the second language

4

turn OFF the device then ON

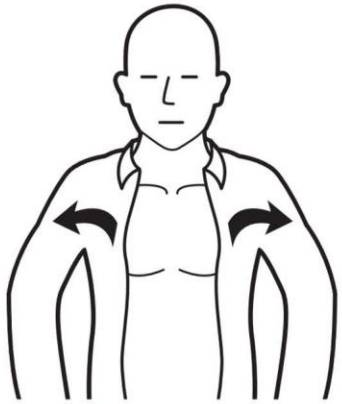
Using the AED

Turn the unit ON and then follow
the voice and display instructions.

TURN AED ON 1

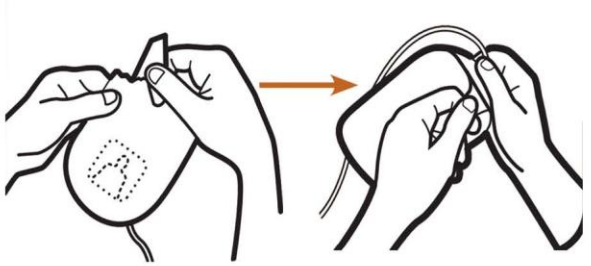
Press “ON” button

PREPARE THE PATIENT 2



Remove clothing from patient’s chest.
If necessary, shave excessive chest hair.

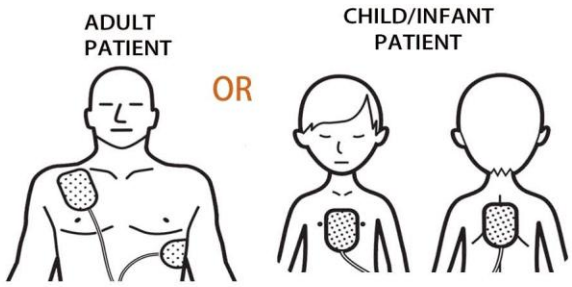
PREPARE ELECTRODE PADS 3



Tear open pads package

Peel pads from liner

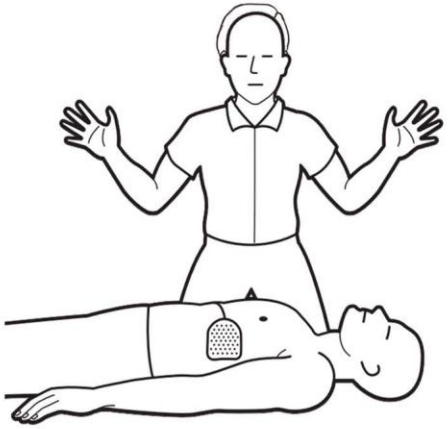
PLACE PADS 4



Apply pads to patient’s bare chest as shown

STAND CLEAR

5



When instructed, do not touch the patient

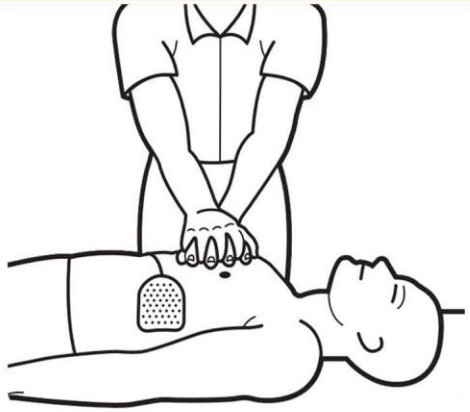
IF INSTRUCTED, PRESS SHOCK BUTTON

6

If instructed, press “SHOCK” button

PERFORM CPR

7



Follow instructions to perform CPR

CONTINUE TO FOLLOW INSTRUCTIONS

8

Continue to follow the voice and display instructions

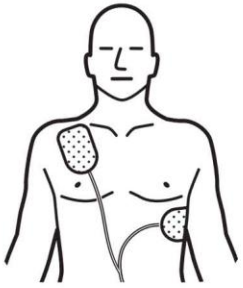
The electrode pads

HOW TO CONNECT THE PADS

Insert the connector end of the defibrillation pad cable into the pads connector socket on the top-left corner of the AED as shown.
Insert pads connector firmly until it is fully seated in the unit.
The connector will only fit in one way
The connected pads package can then be stored in the pad storage pocket in the back of the AED bag.

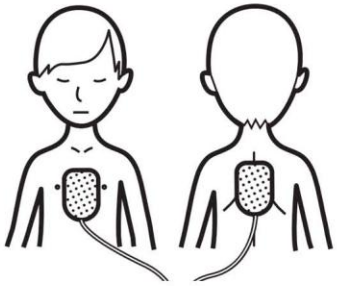
WHICH PADS TO USE

ADULT PADS



For adults and children 8 years or older or over 55 pounds (25kgs), use adult pads

CHILD PADS



For children under 8 years or less than 55 pounds (25kgs), use child pads

WHEN TO REPLACE THE PADS

Our company defibrillation pads are intended for one time use only.
The pads must be replaced after each use or if the package has been damaged.
It is important to check the expiration date of the pads.
The expiration date is printed on the outside of the sealed package.
Do not use pads past their expiration date. Discard expired pads.
* Use only our company electrode pads.

The battery pack

CHECK THE BATTERY

The AED will automatically check the capacity of the battery when it starts. If the battery capacity is low,the unit will indicate "battery low" or "change the battery"

If the AED is out of battery, replace the old battery with a new one.

1. Screw out and remove the thumbscrews to open the battery compartment.
2. Connect a 3-pin new battery, and place the battery into compartment.
3. Slide the battery cover back and make sure the screw holes are aligned. Fasten the thumbscrews.

WHEN TO REPLACE THE BATTERY PACK

It is important to check the production date of the battery pack. which is on the battery pack lable
When the battery pack is low, the unit will indicate "battery low" or "change the battery"
The battery pack should be replaced immediately.
* Use only our company battery packs.

General warnings and cautions

DANGER

- DO NOT TOUCH the AED pads surfaces, the patient, and any conductive material touching the patient during ECG analysis or defibrillation.
- Always stand clear of patient when delivering a shock.

WARNING

- Possible explosion and fire hazard if used in the presence of flammable agents or in an oxygen enriched atmosphere.
- Not for use on infant patients.
  According to the patient's age and weight, choose the right mode and select the proper energy.
- Disconnect other electrical equipment which has no DEFIBRILLATION-PROOF applied parts from the patient before defibrillation.

NOTE

- Improperly placed pads may produce incorrect analysis and an inappropriate shock or no shock decision advisory
- To help ensure safe use of the defibrillator, completely read the General Warnings and cautions section from Chapter 1.

CHARGING AND DISCHARGING PROCESS

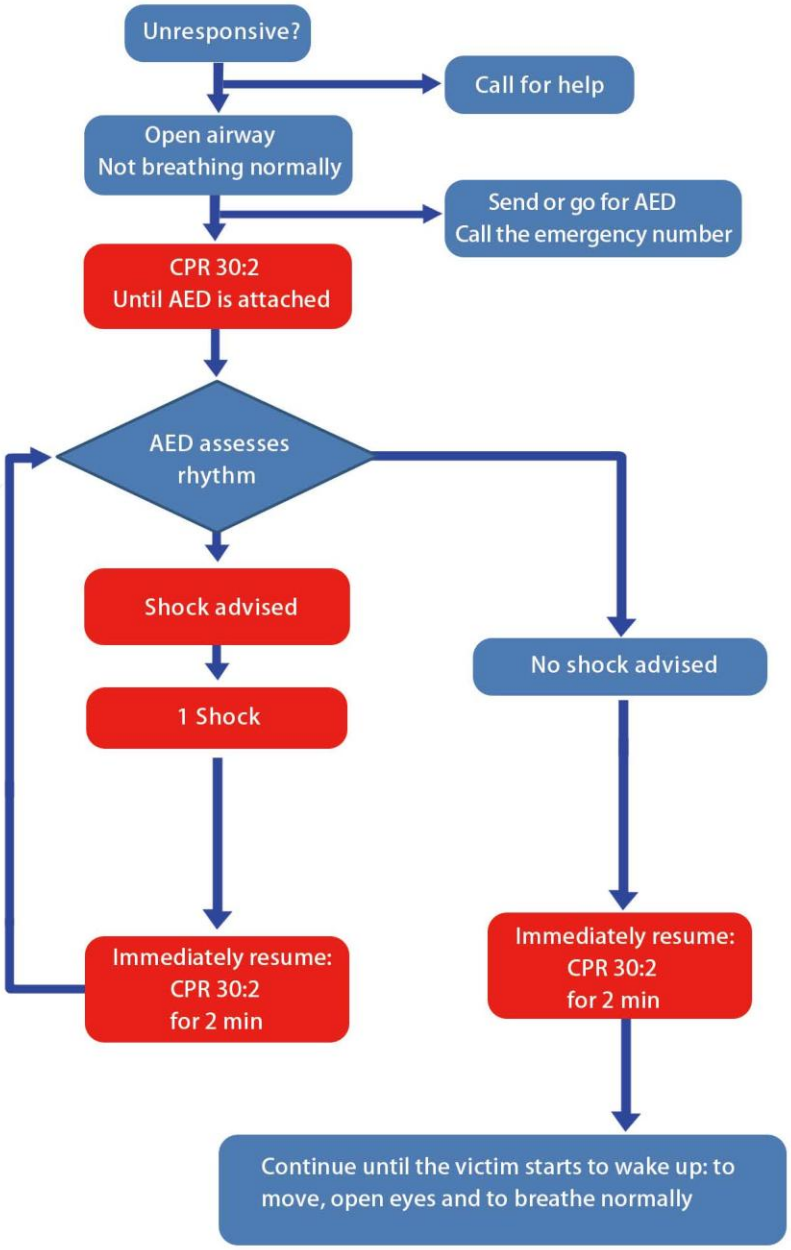
Charging Process

If the AED determines that the patient should have a defibrillation after ECG analysis, the charging process will start.

When the charging procedure starts, the pads checking and ECG analyzing continue, the two conditions are described below:

- AED pads connection:
  If the electrode is improperly connected, the AED will start an internal discharging and give a voice prompt to the operator.
- Normal heart rhythm is detected:
  If a normal heart rhythm is detected, the AED will start an internal discharging and switches to the CPR procedure.

Working flow chart



Three energy of defibrillation:

Adult mode (1)	● First level energy: 150J ● Second level energy: 150J ● Third level energy: 200J
Adult mode (2) [Pro type ONLY]	● First level energy: 120J ● Second level energy: 120J ● Third level energy: 150J
Children mode (1)	● First level energy: 50J ● Second level energy: 50J ● Third level energy: 75J
Children mode (2) [Pro type ONLY]	● First level energy: 30J ● Second level energy: 30J ● Third level energy: 50J

NOTE The charging time depends on the energy of defibrillation.

DISCHARGING PROCESS

When the charging process finished, the AED will enter the discharging procedure and give voice prompts to the operator.

The voice "Do not touch the patient" will instruct operator to do not touch patient. And then the Shock button ASL flashes solid red, and the voice "Do not touch patient, press shock button" instruct operator to press the shock button.

After delivering a shock, the AED will prompt to do Cardiopulmonary re-suscitation procedure about 2 minutes. After that the AED will wait for 10 seconds.
Don't touch the patient during this period. After that, the AED will restart an ECG analyzing, if a shockable rhythm is detected, the defibrillation procedure will process again.
If the operator does not press the shock button, the AED will automatically make an Internal discharging in 15 seconds.

NOTE To help ensure safe use of the defibrillator, completely read the General warnings and cautions section (Page 16)

The AED (Series) will enter Cardiopulmonary resuscitation procedure, when the condition below is occurred:

During the heart rhythm analyzing period, if the heart rhythm is not considered to be a shock able rhythm by AED, a cardiopulmonary resuscitation procedure (CPR) will start.
During the period of charging, if the AED detects that the shockable rhythm has changed to a normal one, the defibrillator will stop current procedure and switch to CPR procedure.
If the patient is breathless and pulseless, a cardiopulmonary resuscitation should be performed on the patient immediately.
After delivering each shock, the AED will enter Cardiopulmonary resuscitation procedure.
At the end of the CPR, the AED will give a prompt to indicate that the operator must stop CPR and not touch the patient so that the defibrillator can restart a heart rhythm analyzing and determine if a shockable rhythm exists.

NOTE The CPR time are fixed to 120 seconds
To help ensure safe use of the defibrillator, completely read the General Warnings and cautions section from (Pace 16).

AN EMERGENCY CANCELLATION

If any unpredictable situation occurs, the operator can use ON/OFF button to make an emergency cancellation.
The unpredictable situation may be described below:
The movement of the patient during the discharging period.

NOTE The disconnection of the electrode pads during the discharging period.
Other dangerous situations.
If the unpredictable situations occur, the operator should press the ON/OFF button for 2 seconds to shut down the AED and internally discharge all the power in the defibrillator.

Routine maintenance

Although the AED is designed to be very low maintenance, simple maintenance tasks must be performed by the owner/operator on a regular basis to ensure the unit's dependability

Monthly	After each use	Action
●	●	Check that the Active Status Indicators
●	●	Check the condition of the unit and accessories
	●	The voice
	●	Replace pads
●		Check the pad and the battery

If the unit needs attention, refer to the "Trouble shooting" section of the User Manual or call our company for service. For contact information, refer to the "Contacts" section of this guide.

ACTIVE STATUS INDICATOR (ASI)

Visually check the Active Status Indicator (ASI) on a daily basis.
The ASI is solid green when turn on the Device.
If the ASI is no solid green when turn on the Device., the unit requires service

Active Status Indicator

Anytime the ASI flashes green for a once, the unit having selftest .

NOTE The operator should follow the rules to perform the inspection, and improper inspection may cause damage to the AED.

If the AED starts without AED pads connection, the indicator of "Check pad" will be flickering and a voice prompt of "Check AED pads" will be broadcasted. If either the two information does not appear, contact the authorized service personnel to make a professional check.

WARNING If the conditions above are observed during the inspection, the AED must return to do a further check and do not use to any patient before it is ready.

WARNING The replaced battery doesn't match the standard battery parameters may cause serious damage to the AED.

Check the AED pads

Inspect the packaging of any disposable AED Pads to ensure integrity of any seals and validity of any expiry date.

CLEANING AND DISINFECTING

- CLEANING

CAUTION Do not clean any part of the defibrillator or accessories with bleach, bleach dilution, or phenolic compounds. Do not use abrasive or flammable cleaning agents. Do not steam, autoclave, or gas-sterilize the defibrillator or its accessories.
Before cleaning the AED, making sure that the unit has been power off, because any cleaning with the machine powered on may cause a shock hazard to the cleaners.
The outside of the AED can be cleaned with a soft cloth dampened in soapy water. Other cleansers without strong solvents could also be used.

CAUTION Do not let the water or other cleansers get into the AED when clean the AED, because these liquid may cause some damage to the AED or a shock hazard to the cleaners.

- DISINFECTING

It is recommended to make disinfection to AED with the 75% alcohol, which is easy to get from hospitals and clinics. Other cleanser without strong solvents also can be considered.

CAUTION Never use the following cleansers to the AED Acetone, Ammonia cleanser, Glutaraldehyde.

Troubleshooting

CAUTION

This section explains problems may occur to AED The indicator and voice prompts also will indicate operator the possible problem.
The operator could try to solve the problem which occurring prior to or during the operation according to these trouble shootings below.

Q The voice prompt of "Check AED pads" is still broadcast when the pads have been placed on the patient and the pads connector has been connect to the socket of the AED

A
1. If the electrode pads are dry, damaged or out-of-date, replace the current pads with a new one and try again.
2. Ensure that the electrode pads have been properly adhered to the patient. If doesn't wipe off the water or moisture from the chest and shave the hair from the chest, then press the pads firmly on the chest of the patient.
3. Make sure that the two pads don't touch each other.
4. If the pads connector is inadequately connected to the socket of the AED, push the connector firmly into the socket.

Q The analyzing is interrupted during the analyzing period, and the voice prompt of "Check AED pads" is broadcasting.

A
1. Power off the AED and check the pads placed on the patient, if they are not properly connected, press the pads firmly on the chest of the patient, then start the AED again.
2. If the patient has moved during the analyzing period, power off the AED and check if the patient is suit for defibrillator.

Q The charging is stopped during the charging period, and the voice prompt of "Check AED pads" is broadcasting.

A
1. Power off the AED and check pads connector. If the connector inadequately connects to the socket of the AED, push the connector firmly into the socket.

Q The AED automatically has an internal discharging after the charging is finished and broadcast voice prompt of "Analyzing, do not touch patient".

A
1. Power off the AED and check the pads contacting with patient's bare chest. If the pads are poorly contacted, wipe off the air hole and press the pads firmly on the chest of the patient.
2. If the operator doesn't press the shock button in 15 seconds after the charging is finished, the AED will automatically make an internal discharging.
3. Press the shock button in 15 seconds after the voice prompts of "Do not touch patient, press shock button".

Q During the operation of the AED, the ON/OFF indicator is flashing.

A
1. Power off the AED and replace the battery with a new one.

Technical specifications

1. General

Category	Specification
Dimensions	80D x 240W x 300L mm
Weight	1.9 ±0.2kg
Operating Temperature	0℃ to 40℃
Operating Humidity	Relative humidity between 30% and 95% (non-condensing)
Storage Temperature (without battery)	-20℃ to 55℃
Storage Humidity (without battery)	Up to 93% (non-condensing)
Design Standard	ISO13485 ISO14155 ISO14971 EN980 EN1041 IEC 60601-1:2005+A1:2012 Type BF, Internally Powered, Continuous operation, Defibrillator Proof Operation IEC60601-1-6 IEC60601-2-4 IEC62304 IEC62366 IEC60601-1-2

NOTE: No time is needed for warming or cooling the AED form the min. or max. storage temperature.

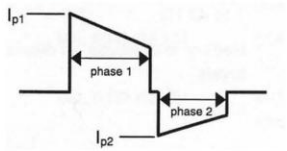
2. Defibrillator

Category	Specification	
Waveform	Biphasic Truncated exponential	
Energy Sequence	Adult mode: 150J, 150J, 200J 120J, 120J, 150J Children mode: 50J, 50J, 75J 30J, 30J, 50J	[Pro type ONLY] [Pro type ONLY]
Charge Time	08 sec. to 150J 12 sec. to 200 J	
Instruction	Voice and Visual Prompts	
Controls	Three buttons - On/Off,Shock,set	

Output Energy Accuracy	±15% into any impedance from 25 to 175Ω
The Maximum Voltage	1050±50V
Output disabled when the PATIENT impedance is outside limits	20Ω to 200Ω

3. Waveform Specifications

The table below provides details of the biphasic truncated exponential waveform delivered by the AED (set to 200J) when connected to resistive loads of 25 through 175 Ohms. The waveforms are characterized by typical values for peak current (Ip), duration of the first output phase, and duration of the second output phase. Values are within 10%.



Output Energy (J)	Patient Impedance (Ω)	Ip1 (Amps)	Ip2 (Amps)	Phase1 (ms)	Phase2 (ms)	Interval (ms)
30	25	20.7	13.5	5.5	3.2	0.7
	50	10.3	6.8	10.6	6.5	0.7
	75	6.9	4.5	16.1	8.8	0.7
	100	5.2	3.4	19.5	9.5	0.7
	125	4.1	2.7	20.1	11.1	0.7
	150	3.4	2.3	21.5	10.5	0.7
	175	2.9	1.9	21.7	11.2	0.7
50	25	26.7	17.4	5.6	3.2	0.7
	50	13.3	8.7	10.7	6.5	0.7
	75	8.9	5.8	16.2	8.8	0.7
	100	6.7	4.4	19.5	9.5	0.7
	125	5.3	3.5	20.1	10.8	0.7
	150	4.4	2.9	21.5	10.3	0.7
	175	3.8	2.5	21.7	11.0	0.7
75	25	32.7	21.4	5.5	3.3	0.7
	50	16.3	10.7	10.9	6.6	0.7
	75	10.9	7.1	16.3	8.9	0.7
	100	8.2	5.3	19.7	9.6	0.7
	125	6.5	4.3	20.5	11.2	0.7
	150	5.4	3.6	21.6	10.4	0.7
	175	4.7	3.1	21.8	11.2	0.7
120	25	41.3	27.0	5.6	3.2	0.7
	50	20.7	13.1	10.7	6.5	0.7
	75	13.8	9.0	16.2	8.8	0.7
	100	10.3	6.8	19.5	9.5	0.7
	125	8.3	5.4	20.1	11.2	0.7
	150	6.9	4.5	21.5	10.4	0.7
	175	6.0	3.9	21.7	11.2	0.7
150	25	46.1	31.0	5.6	3.2	0.7
	50	23.9	15.1	10.7	6.5	0.7
	75	15.7	10.3	16.2	8.8	0.7
	100	11.5	7.7	19.5	9.5	0.7
	125	9.0	6.2	20.2	10.8	0.7
	150	7.4	5.2	21.4	10.3	0.7
	175	7.2	5.2	21.6	11.0	0.7
200	25	53.6	36.0	5.5	3.3	0.7
	50	27.8	17.5	10.9	6.6	0.7
	75	18.2	12.0	16.3	8.9	0.7
	100	13.4	9.0	19.7	9.6	0.7
	125	10.5	7.2	20.5	11.2	0.7
	150	8.6	6.0	21.6	10.4	0.7
	175	8.2	6.1	21.8	11.2	0.7

4. Electrical Isolation

Category	Specification
Power	Unit operates on internal battery only
External Electrical Connections	No external devices are attached to the unit
Risk Current Category	Internally powered equipment with defibrillator-proof BF type patient applied part (as per definition of IEC 60601-1 standard)

5. Battery

Category	Specification
Non-Rechargeable	12V, 2.8Ah Li-MnO2 Cell
Capacity	100 discharges at 200 Joules or 120 discharges at 150 Joules (under the operation environment)
Shelf Life (25℃±15℃)	8 years (4 years storage + 4 years standby) 4 years standby (after installation)

NOTE Battery capacity measured according to IEC 60601-2-4, clause 102.3.2 at room temperature. Capacity may be diminished at operating temperature extremes, or when the available battery charge is used in multiple Power ON/OFF cycles.

Rhythm recognition performance

The AED algorithm exceeds the requirements of ANSI/AAMI DF39-1993 section 3.3.18 and the sensitivity and specificity levels recommended by the AHA Automatic External Defibrillators for Public Access Use: Recommendations for Specifying and Reporting Arrhythmia Analysis Algorithm Performance.

The test database includes shockable rhythms consisting of ventricular fibrillation rhythms (>200u V) and wide-complex ventricular tachycardia at a rate greater than 140 BPM. Non-shockable rhythms include various sinus rhythms including supraventricular tachycardia, atrial fibrillation, atrial fluter, sinus rhythm with PVC's, asystole, pacemaker rhythmsa, and ventricular tachycardia with a rate less than 140 BPM and/or narrow complexes.

Rhythms	Test Sample Size	Performance Goal	90% one-sided lower confidence level	Conclusion
Shockable: VF	1067	>90% sensitivity	92.1%	Meets the AAMI DF39 requirement and AHA recommendation
Shockable: VT	22	>75% sensitivity	95.5%	Meets the AAMI DF39 requirement and AHA recommendation
Nonshockable: NSR	4000	>99% sensitivity (AHA)	99.5%	Meets the AAMI DF39 requirement and AHA recommendation
Nonshockable: asystole	179	>95% sensitivity	95.5%	Meets the AAMI DF39 requirement and AHA recommendation
Nonshockable: all other rhythms	25732	>95% sensitivity	98.8%	Meets the AAMI DF39 requirement and AHA recommendation

According to IEC60601-2-4 6.8.3 aa)

Shock	1004	320
No Shock	85	29591

The sensitivity of the device for shockable rhythms is 92.2%. The true predictive value is 75.8%.
The specificity of the device for non-shockable rhythms is 98.9%. The false positive rate is 1.1%.

Guidance and manufacturer's declaration

Table 1 – Guidance and MANUFACTURER' S declaration
ELECTROMAGNETIC EMISSIONS – for The AED (Series)

Guidance and manufacturer' s declaration – electromagnetic emissions		
The AED is intended for use in the electromagnetic environment specified below. The customer or the user of the AED should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 11	Group 1	The AED uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Not applicable	The AED is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Not applicable	

Table 2 – Guidance and MANUFACTURER' S declaration
Electromagnetic IMMUNITY – for AED

Guidance and manufacturer' s declaration – electromagnetic immunity			
The AED is intended for use in the electromagnetic environment specified below. The customer or the user of the AED should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6kV contact ±8kV air	±6kV contact ±8kV air	Floors should be wood, concrete or ceramic。 If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environmen

Table 3 – Guidance and MANUFACTURER' S declaration –
Electromagnetic IMMUNITY – for LIFE SUPPORTING the AED series

Guidance and manufacturer' s declaration – electromagnetic immunity			
The AED is intended for use in the electromagnetic environment specified below. The user of the AED should assure that it is used in such an environment.			
Immunity Test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Radiated RF IEC	20V/m 80 MHz to 2.5 GHz	20V/m	Portable and mobile RF communications equipment should be used no closer to any part of the AED , including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.Recommended separation distance $d = 0{,}6\sqrt{P}$ 80MHz to 800 MHz $d = 1{,}15\sqrt{P}$ 800 MHz to 2,5 GHz Where P is the maximum output power rating of the transmitter in watts (W) and is therecomened separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey c, should be less than the compliance level in each frequency ranged. Interference may occur in the vicinity of equipment marked with the following symbol: 
NOTE 1. At 80 MHz and 800 MHz, the higher frequency range applies. NOTE 2. These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

b The compliance levels in the frequency range 80 MHz to 2,5 GHz are intended to decrease the likelihood that mobile/portable communications equipment could cause interference if it is inadvertently brought into patient areas. For this reason, an additional factor of 10/3 has been incorporated into the formulae used in calculating the recommended separation distance for transmitters in these frequency ranges.

c Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Defi 5s is used exceeds the applicable RF compliance level above, the AED should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the AED.

Table 4 – Recommended separation distances between portable and mobile RF communications equipment and the AED for LIFE-SUPPORTING

Recommended separation distances between portable and mobile RF communications equipment and the AED

The AED is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the AED can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the AED as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	Separation distance according to frequency of transmitterm	
	80 MHz to 800 MHz $d = 0{,}6\sqrt{P}$	800 MHz to 2,5 GHz $d = 1{,}15\sqrt{P}$
0.01	0.05	0.115
0.1	0.19	0.364
1	0.6	1.15
10	1.90	3.537
100	6	11.5

For transmitters rated at a maximum output power not listed above, recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1. At 80 MHz & 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2. An additional factor of 10/3 is used in calculating the recommended separation distance for transmitters in the frequency range 80 MHz to 2.5 GHz to decrease the likelihood that mobile/portable communications equipment could cause interference if it is inadvertently brought into patient areas.

NOTE 3. These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Glossary of terms

AED	Automated external defibrillator
ALS	Advanced life support
Arrhythmia	An unhealthy, often irregular, beating of the heart.
Cardiac arrest	Cessation of the heart muscle
CPR	Cardiopulmonary resuscitation
Defibrillation	High-energy pulse of electricity (shock) delivered to the heart muscle to restore normal cardiac activity
ECG	Electrocardiogram
Electrocardiograph	Instrument used to record electrical currents associated with heart muscle activity
Fibrillation	Rapid twitching movements that replace the normal rhythmic contraction of the heart and may cause a lack of circulation and pulse
Joule	The amount of energy delivered during defibrillation, related to the intensity of the shock delivered.
Non-shockable rhythm	Patient heart rhythms that are not a candidate for defibrillation pulse
NSR	Normal sinus rhythm
RF	Radio frequency
SCA	Sudden cardiac arrest
Self-test	Automatic test performed at system power-up to check readiness of battery, internal circuitry, main processor, and defibrillator
Shock	Defibrillation electrical pulse
Shockable rhythm	Abnormal heart rhythm which is a candidate for defibrillation pulse
Tachycardia	An abnormally fast heart rate
Time-stamped event	Any change in heart rhythm or any shock delivered by the defibrillator
Q	Question
A	Answer

Checking table

Time	Device	Pads	Battery

Checking table

Time	Device	Pads	Battery