

Certificate No.

24PTP_0104240210

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Certificate of Calibration

EQUIPMENT : DEFIBRILLATORS, EXTERNAL, MANUAL

ID CODE : PTP01518

MANUFACTURER : PHILIPS

MODEL : HeartStart XL+ (861290)

SERIAL No. : USO1518016

LOCATION : Patient Wards 404

SUBMITTED BY : PHYATHAI PHAHOLYOTHIN HOSPITAL

670/1 Phaholyothin Road, Samsen Nai, Phaya Thai, Bangkok 10400

Tel: 02-271-7000 Fax: -

CALIBRATED DATE : 22 APRIL 2024

ISSUE DATE : 1 MAY 2024

Supatcha

Performed by: _____ Approved by

SUPATCHA BUAPUEAN

Approved by :

PHUWASIN YIWKIM

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CONDITION OF THIS RESULT OF TEST

1. REFERENCE STANDARD INSTRUMENT:

MASTERMANUFACTURERMODELSERIAL NO.CERTIFICATE NO.DUE DATEDefibrillatorFlukeImpulse 7000DP207933523MD7757 Jun 2024

Analyzer

2. THIS CERTIFICATION IS TRACEABLE TO:

- Technology Promotion Association (Thai-Japan)

3. THIS RESULT OF TEST WAS FOUND ACCURATE AS SHOW ON DATE AND PLACE OF TEST ONLY



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Calibration Report

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DATE OF CALIBRATION : 22 APRIL 2024

ENVIRONMENT : TEMPERATURE 24 °C

RELATIVE HUMIDITY 56 %

PROCEDURE USED:

This instrument was calibration by comparison with standard

MEASURMENT RESULT:

/	Without Adjustment		Before Adjustment		After Adjustment
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Output Energy				
UUC* Setting	Standard Reading	Error	% Error	Uncertainty
(Joule)	(Joule)	(Joule)	(%)	(Joule)
10	9.50	-0.50	-5.00	± 0.1400
100	96.40	-3.60	-3.60	± 0.2800
200	193.40	-6.60	-3.30	± 0.5500

Output Energy (Energy after 50 Sec (Manual Mode) ≥85%)						
UUC* Setting	Standard Reading	Error	% Error	Uncertainty		
(Joule)	(Joule)	(Joule)	(%)	(Joule)		
100	96.30	-3.70	-3.70	± 0.3630		

Heart Rate							
Standard Setting	UUC* Reading	Error	% Error	Uncertainty			
(BPM)	(BPM)	(BPM)	(%)	(BPM)			
60	60.00	0.00	0.00	± 0.0150			
80	80.00	0.00	0.00	± 0.0170			
120	120.00	0.00	0.00	± 0.0150			

Gain							
Standard Setting	UUC* Reading	Error	% Error	Uncertainty			
(mm/mV)	(mm/mV)	(mm/mV)	(%)	(mm/mV)			
5	5.00	0.00	0.00	± 0.1155			
10	10.00	0.00	0.00	± 0.2309			



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Gain (Continues)						
Standard Setting	UUC* Reading	Error	% Error	Uncertainty		
(mm/mV)	(mm/mV)	(mm/mV)	(%)	(mm/mV)		
20	20.00	0.00	0.00	± 0.4619		

Amplitude							
Standard Setting	UUC* Reading	Error	% Error	Uncertainty			
(mV)	(mV)	(mV)	(%)	(mV)			
1	1.00	0.00	0.00	± 0.0231			
2	2.00	0.00	0.00	± 0.0462			

Paper Speed							
Standard Setting	UUC* Reading	Error	% Error	Uncertainty			
(mm/sec)	(mm/sec)	(mm/sec)	(%)	(mm/sec)			
25	25.00	0.00	0.00	± 0.2887			

Heart Rate(Noninvasive Pacing)							
Standard Setting	UUC* Reading	Error	% Error	Uncertainty			
(PPM)	(PPM)	(PPM)	(%)	(PPM)			
60	60.00	0.00	0.00	± 0.0150			
180	180.00	0.00	0.00	± 0.1500			

Current (Noninvasive Pacing)							
Standard Setting	UUC* Reading	Error	% Error	Uncertainty			
(mA)	(mA)	(mA)	(%)	(mA)			
60	60.50	0.50	0.83	± 0.6929			
140	141.20	1.20	0.86	± 1.6166			

UUC*: Unit Under Calibration

The reported uncertainty of measurement was based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%