

Certificate No. 24

24PTP\_0104240122

Page 1 of 3

### **Certificate of Calibration**

EQUIPMENT : MODULE, ECG/SPO2/NIBP

ID CODE : PTP00381

MANUFACTURER : PHILIPS

MODEL : M3001A

SERIAL No. : DE632F7989

LOCATION : I.C.U

SUBMITTED BY : PHYATHAI PHAHOLYOTHIN HOSPITAL

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

Tel: 02-271-7000 Fax: -

CALIBRATED DATE : 18 APRIL 2024

ISSUE DATE : 2 MAY 2024

Performed by: \_\_\_\_\_ Approved by:

2024

USANEE CHALONGPHOKSILCHAI PHUWASIN YIWKIM

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### **CONDITION OF THIS RESULT OF TEST**

#### 1. REFERENCE STANDARD INSTRUMENT:

MASTERMANUFACTURERMODELSERIAL NO.CERTIFICATE NO.DUE DATEVitalsign SimulatorFlukeProSim8254103123MD7777 Jun 2024

#### 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



*Certificate No.* 24PTP\_0104240122

Page 2 of 3

# **Calibration Report**

EQUIPMENT : MODULE, ECG/SPO2/NIBP

ID CODE : PTP00381

MANUFACTURER : PHILIPS

MODEL : M3001A

SERIAL No. : DE632F7989

DATE OF CALIBRATION : 18 APRIL 2024

ENVIRONMENT : TEMPERATURE 25 °C

RELATIVE HUMIDITY 55 %

### **PROCEDURE USED:**

This instrument was calibration by comparison with standard

### **MEASURMENT RESULT:**

| / | Without Adjustment |  | Before Adjustment |  | After Adjustment |
|---|--------------------|--|-------------------|--|------------------|
|---|--------------------|--|-------------------|--|------------------|

| Systolic(NIBP)   |              |        |         |             |  |  |
|------------------|--------------|--------|---------|-------------|--|--|
| Standard Setting | UUC* Reading | Error  | % Error | Uncertainty |  |  |
| (mmHg)           | (mmHg)       | (mmHg) | (%)     | (mmHg)      |  |  |
| 60               | 62.00        | 2.00   | 3.33    | ± 0.9238    |  |  |
| 120              | 120.00       | 0.00   | 0.00    | ± 1.2702    |  |  |
| 200              | 199.00       | -1.00  | -0.50   | ± 1.7321    |  |  |

| Diastolic(NIBP)  |              |        |         |             |  |  |
|------------------|--------------|--------|---------|-------------|--|--|
| Standard Setting | UUC* Reading | Error  | % Error | Uncertainty |  |  |
| (mmHg)           | (mmHg)       | (mmHg) | (%)     | (mmHg)      |  |  |
| 30               | 33.00        | 3.00   | 10.00   | ± 0.7506    |  |  |
| 80               | 81.00        | 1.00   | 1.25    | ± 1.0393    |  |  |
| 150              | 147.00       | -3.00  | -2.00   | ± 1.4434    |  |  |

| 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    | ± 0.0460    |  |  |
| 120              | 120.00       | 0.00  | 0.00    | ± 0.0460    |  |  |

FI-BME-NHS-CP-029/1 Rev.03 Page 2/3 Issued Date 20/07/2023



*Certificate No.* 24PTP\_0104240122

Page 3 of 3

# **Calibration Report**

EQUIPMENT : MODULE, ECG/SPO2/NIBP

ID CODE : PTP00381 SERIAL No. : DE632F7989

| %Spo2                |                      |                      |         |                      |  |  |
|----------------------|----------------------|----------------------|---------|----------------------|--|--|
| Standard Setting     | UUC* Reading         | Error                | % Error | Uncertainty          |  |  |
| (%SPO <sub>2</sub> ) | (%SPO <sub>2</sub> ) | (%SPO <sub>2</sub> ) | (%)     | (%SPO <sub>2</sub> ) |  |  |
| 90                   | 90.00                | 0.00                 | 0.00    | ± 0.1039             |  |  |
| 96                   | 96.00                | 0.00                 | 0.00    | ± 0.1109             |  |  |
| 100                  | 100.00               | 0.00                 | 0.00    | ± 0.1155             |  |  |

| Temperature      |              |       |         |             |  |  |
|------------------|--------------|-------|---------|-------------|--|--|
| Standard Setting | UUC* Reading | Error | % Error | Uncertainty |  |  |
| (°C)             | (°C)         | (°C)  | (%)     | (°C)        |  |  |
| 35               | 35.00        | 0.00  | 0.00    | ± 0.0051    |  |  |
| 37               | 37.00        | 0.00  | 0.00    | ± 0.0051    |  |  |
| 39               | 39.00        | 0.00  | 0.00    | ± 0.0055    |  |  |

| Systolic(IBP)    |              |        |         |             |  |  |
|------------------|--------------|--------|---------|-------------|--|--|
| Standard Setting | UUC* Reading | Error  | % Error | Uncertainty |  |  |
| (mmHg)           | (mmHg)       | (mmHg) | (%)     | (mmHg)      |  |  |
| 10               | 10.00        | 0.00   | 0.00    | ± 0.1155    |  |  |
| 24               | 24.00        | 0.00   | 0.00    | ± 0.2771    |  |  |
| 120              | 120.00       | 0.00   | 0.00    | ± 1.3857    |  |  |

| Diastolic(IBP)   |              |        |         |             |  |  |
|------------------|--------------|--------|---------|-------------|--|--|
| Standard Setting | UUC* Reading | Error  | % Error | Uncertainty |  |  |
| (mmHg)           | (mmHg)       | (mmHg) | (%)     | (mmHg)      |  |  |
| 2                | 2.00         | 0.00   | 0.00    | ± 0.0231    |  |  |
| 10               | 10.00        | 0.00   | 0.00    | ± 0.1155    |  |  |
| 80               | 80.00        | 0.00   | 0.00    | ± 0.9238    |  |  |

### **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%