โรงพยาบาลน่าน
NAN HOSPITAL

Inspection and Preventive Maintenance System Of *Weighing machine*(Neonate)

Biomedical Engineering Department Nan Hospital

Procedure No.IPM-WEB-001 (Period 1 Yr.)/Average Time Required : 90 Minute

STATUS
[/] PASSED
[ ] SERVICE REQUIRED
[ ] REMOVE FROMUSE

Equipment information

Department : LR
Equipment No. : 6530-008-0321/57-001
Manufacturer : PROGRESS
Location : Phuphiang Hospital

ID Code : WEB -LR-001
IPM Date :19/07/66
Model : RGZ-20A
IPM Report : IPM 061/66

SN : -

IPM Information

IPM Type : [/] Incoming (IPM Plan) [ ] Post Repair [ ] New Equipment [ ] Re-Call [ ] Other .....

Ambient Temperature : 23.6°C (25°C ±5°C) **Humidity : 56.7**%RH (55 % RH±15)

Test Apparatus

Equipment	Manufacturer	Model	Serial No.	Cert. No.	Cal. date
Standard weight	LS	Class F1	SS10K113-19	CM190064	08/02/2019

IPM Result (Reference : ECRI 2008 Institute)

QUALITATIVE TASKS									
PASS	FAIL	N/A	Check	Comment	PASS	FAIL	N/A	Check	Comment
[/]	[ ]	[ ]	Chassis/Housing		[ ]	[ ]	[/]	Circuit Breaker/Fuse	
[ ]	[ ]	[/]	Mount/Fasteners		[ ]	[ ]	[/]	Control/Switches	
[ ]	[ ]	[/]	AC Plug		[ ]	[ ]	[/]	Indicators/Displays	
[ ]	[ ]	[/]	Line Cord		[ ]	[ ]	[/]	Labeling	
[ ]	[ ]	[/]	Strain Relief		[ ]	[ ]	[/]	Accessories	

Electrical Safety Test						
	Criteria Set	Set / Indicated	Measured	PASS	FAIL	N/A
Electrical Safety : [ ] IEC 60101-1 : [ ] IEC62353	**Class of Protection : [ ] CLASS I [ ] CLASS II** **Applied Part Type : [ ] B Type [ ] BF Type [ ] CF Type**					
Mains Voltage	Live to Neutral		Vac.			
	Neutral to Earth		Vac.			
	Live to Earth		Vac.			
Ground Resistance /Protective Earth Resistance	[ ]≤ 0.2Ω [ ]≤ 0.3Ω [ ]≤ 0.5Ω		Ω	[ ]	[ ]	[/]
Chassis/Enclosure Leakage Current	≤ 500μA		μA	[ ]	[ ]	[/]
Earth Leakage Current	[ ]<5,000μA [ ]<10,000μA		μA	[ ]	[ ]	[/]
Patient Leakage Current	[ ]≤ 100 μA(B) [ ]≤ 100 μA (BF)		μA	[ ]	[ ]	[/]
Patient lead leakage current/ Patient Auxiliary current – isolation test	[ ]≤ 100 μA (B) [ ]≤ 100 μA (BF)		μA	[ ]	[ ]	[/]
Main On Apply Part	<50μA		μA	[ ]	[ ]	[/]
Insulation test (optional) 500 V	≥ 2 MΩ	Mains-P.E.	MΩ	[ ]	[ ]	[/]
	≥ 2 MΩ	A.P.-P.E.	MΩ	[ ]	[ ]	[/]
	≥ 2 MΩ	Mains-A.P.	MΩ	[ ]	[ ]	[/]

โรงพยาบาลน่าน
NAN HOSPITAL

Inspection and Preventive Maintenance System Of *Weighing machine*(Neonate)

Biomedical Engineering Department Nan Hospital

QUANTITATIVE TASKS(Cont.)						
	Criteria	Set / Indicated	Measured	PASS	FAIL	N/A
Measured Value						
WEB						
	±50g	1,000g	1,000g	[/]	[ ]	[ ]
		1,200g	-	[ ]	[ ]	[/]
		1,500g	-	[ ]	[ ]	[/]
	±100g	2,000g	2,050g	[/]	[ ]	[ ]
		2,500g	-	[ ]	[ ]	[/]
		3,000g	3,000g	[/]	[ ]	[ ]
		3,500g	-	[ ]	[ ]	[/]
		5,000g	5,000g	[/]	[ ]	[ ]
	±100g	8,000g	8,000g	[/]	[ ]	[ ]
		10,000g	9,900g	[/]	[ ]	[ ]
		12,000g	-	[ ]	[ ]	[/]
		15,000g	-	[ ]	[ ]	[/]

PREVENTIVE MAINTENANCE					
Done		**Comment**			
[/]	Clean				
[ ]	Lubricate				
	Replace	**Quantity**	**Unit Price**	**Amount**	**Comment**
[ ]	Battery (Replace Every 18-24 Mount)				
[ ]					
[ ]					
[ ]					
[ ]					
[ ]	Other.....				
		Total			

NOTE

Inspector : .....

(นางสาววิมลรัตน์ ขันทะบุตร)

โรงพยาบาลน่าน
NAN HOSPITAL

Inspection and Preventive Maintenance System Of *Weighing machine*(Neonate)

Biomedical Engineering Department Nan Hospital

Procedure No.IPM-WEB-001 (Period 1 Yr.)/Average Time Required : 90 Minute

STATUS
[ ] PASSED
[ ] SERVICE REQUIRED
[/] REMOVE FROMUSE

Equipment information

Department : OPD
Equipment No. : 6530-008-0321/58-001
Manufacturer : PROGRESS
Location : Phuphiang Hospital

ID Code : WEB -OPD-002
IPM Date : 19/07/66
Model : RGZ-20A
IPM Report : IPM0058/66

SN : -

IPM Information

IPM Type : [/] Incoming (IPM Plan) [ ] Post Repair [ ] New Equipment [ ] Re-Call [ ] Other .....

Ambient Temperature : 23.2°C (25°C ±5°C) **Humidity : 55.7**%RH (55% RH±15)

Test Apparatus

Equipment	Manufacturer	Model	Serial No.	Cert. No.	Cal. Date
Standard weight	LS	Class F1	SS10K113-19	CM190064	08/02/2019

IPM Result (Reference : ECRI 2008 Institute)

QUALITATIVE TASKS									
PASS	FAIL	N/A	Check	Comment	PASS	FAIL	N/A	Check	Comment
[/]	[ ]	[ ]	Chassis/Housing		[ ]	[ ]	[/]	Circuit Breaker/Fuse	
[ ]	[ ]	[/]	Mount/Fasteners		[ ]	[ ]	[/]	Control/Switches	
[ ]	[ ]	[/]	AC Plug		[ ]	[ ]	[/]	Indicators/Displays	
[ ]	[ ]	[/]	Line Cord		[ ]	[ ]	[/]	Labeling	
[ ]	[ ]	[/]	Strain Relief		[ ]	[ ]	[/]	Accessories	

Electrical Safety Test						
	Criteria Set	Set / Indicated	Measured	PASS	FAIL	N/A
Electrical Safety : [ ] IEC 60101-1 : [ ] IEC62353	**Class of Protection : [ ] CLASS I [ ] CLASS II** **Applied Part Type : [ ] B Type [ ] BF Type [ ] CF Type**					
Mains Voltage	Live to Neutral		Vac.			
	Neutral to Earth		Vac.			
	Live to Earth		Vac.			
Ground Resistance /Protective Earth Resistance	[ ]≤ 0.2Ω [ ]≤ 0.3Ω [ ]≤ 0.5Ω		Ω	[ ]	[ ]	[/]
Chassis/Enclosure Leakage Current	≤ 500μA		μA	[ ]	[ ]	[/]
Earth Leakage Current	[ ]<5,000μA [ ]<10,000μA		μA	[ ]	[ ]	[/]
Patient Leakage Current	[ ]≤ 100 μA(B) [ ]≤ 100 μA (BF)		μA	[ ]	[ ]	[/]
Patient lead leakage current/ Patient Auxiliary current – isolation test	[ ]≤ 100 μA (B) [ ]≤ 100 μA (BF)		μA	[ ]	[ ]	[/]
Main On Apply Part	<50μA		μA	[ ]	[ ]	[/]
Insulation test (optional) 500 V	≥ 2 MΩ	Mains-P.E.	MΩ	[ ]	[ ]	[/]
	≥ 2 MΩ	A.P.-P.E.	MΩ	[ ]	[ ]	[/]
	≥ 2 MΩ	Mains-A.P.	MΩ	[ ]	[ ]	[/]

โรงพยาบาลน่าน
NAN HOSPITAL

Inspection and Preventive Maintenance System Of *Weighing machine*

Biomedical Engineering Department Nan Hospital

Procedure No.IPM-WEA-001 (Period 1 Yr.)/Average Time Required : 90 Minute

STATUS
[/] PASSED
[ ] SERVICE REQUIRED
[ ] REMOVE FROMUSE

Equipment information

Department : ANC
Equipment No. : 6530-008-0721/003
Manufacturer : PRORESS
Location : Phuphiang Hospital

ID Code : WEA-ANC-001
IPM Date : 20/07/66
Model : -
SN : -
IPM Report : IPM 066/66

IPM Information

IPM Type : [/] Incoming (IPM Plan) [ ] Post Repair [ ] New Equipment [ ] Re-Call [ ] Other .....

Ambient Temperature : 23.2°C (25°C ±5°C) **Humidity : 55.2**%RH (55% RH±15)

Test Apparatus

Equipment	Manufacturer	Model	Serial No.	Cert. No.	Cal. date
Standard weight	LS	Class M1	I5K106-19,I10K107-19,I20K108-19 to I20K112-19	CM190063	08/02/2019

IPM Result (Reference : ECRI 2008 Institute)

QUALITATIVE TASKS									
PASS	FAIL	N/A	Check	Comment	PASS	FAIL	N/A	Check	Comment
[/]	[ ]	[ ]	Chassis/Housing		[ ]	[ ]	[/]	Circuit Breaker/Fuse	
[ ]	[ ]	[/]	Mount/Fasteners		[ ]	[ ]	[/]	Control/Switches	
[ ]	[ ]	[/]	AC Plug		[ ]	[ ]	[/]	Indicators/Displays	
[ ]	[ ]	[/]	Line Cord		[ ]	[ ]	[/]	Labeling	
[ ]	[ ]	[/]	Strain Relief		[ ]	[ ]	[/]	Accessories	

Electrical Safety Test						
	Criteria Set	Set / Indicated	Measured	PASS	FAIL	N/A
Electrical Safety : [ ] IEC 60101-1 : [ ] IEC62353	**Class of Protection : [ ] CLASS I [ ] CLASS II** **Applied Part Type : [ ] B Type [ ] BF Type [ ] CF Type**					
Mains Voltage	Live to Neutral		Vac.			
	Neutral to Earth		Vac.			
	Live to Earth		Vac.			
Ground Resistance /Protective Earth Resistance	[ ]≤ 0.2Ω [ ]≤ 0.3Ω [ ]≤ 0.5Ω		Ω	[ ]	[ ]	[/]
Chassis/Enclosure Leakage Current	≤ 500µA		µA	[ ]	[ ]	[/]
Earth Leakage Current	[ ]<5,000µA [ ]<10,000µA		µA	[ ]	[ ]	[/]
Patient Leakage Current	[ ]≤ 100 µA (B) [ ]≤ 100 µA (BF)		µA	[ ]	[ ]	[/]
Patient lead leakage current/ Patient Auxiliary current – isolation test	[ ]≤ 100 µA (B) [ ]≤ 100 µA (BF)		µA	[ ]	[ ]	[/]
Main On Apply Part	<50µA		µA	[ ]	[ ]	[/]
Insulation test (optional) 500 V	≥ 2 MΩ	Mains-P.E.	MΩ	[ ]	[ ]	[/]
	≥ 2 MΩ	A.P.-P.E.	MΩ	[ ]	[ ]	[/]
	≥ 2 MΩ	Mains-A.P.	MΩ	[ ]	[ ]	[/]

Inspection and Preventive Maintenance System Of *Weighing machine*

Biomedical Engineering Department Nan Hospital

QUANTITATIVE TASKS(Cont.)						
	Criteria	Set / Indicated	Measured	PASS	FAIL	N/A
Measured Value						
WEA						
Adult (Kg)	±1 Kg	5 Kg	5.00	[/]	[ ]	[ ]
		10Kg	10.00	[/]	[ ]	[ ]
		20Kg	19.50	[/]	[ ]	[ ]
		40Kg	39.50	[/]	[ ]	[ ]
		60Kg	59.50	[/]	[ ]	[ ]
		80Kg	-	[ ]	[ ]	[/]

PREVENTIVE MAINTENANCE					
Done		**Comment**			
[/]	Clean				
[ ]	Lubricate				
	Replace	**Quantity**	**Unit Price**	**Amount**	**Comment**
[ ]	Battery (Replace Every 18-24 Mount)				
[ ]					
[ ]					
[ ]					
[ ]					
[ ]					
[ ]					
[ ]	Other.....				
		Total			

NOTE

Inspector : .....

(นางสาววิมลรัตน์ ขันทะบุตร)

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NAN HOSPITAL

Inspection and Preventive Maintenance System Of *Weighing machine*

Biomedical Engineering Department Nan Hospital

Procedure No.IPM-WEA-001 (Period 1 Yr.)/Average Time Required : 90 Minute

STATUS
[/] PASSED
[ ] SERVICE REQUIRED
[ ] REMOVE FROMUSE

Equipment information

Department : OPD
Equipment No. : 6515-069-3302/64-001
Manufacturer : SONKA
Location : Phuphiang Hospital

ID Code : WEA-OPD-001
IPM Date : 20/07/66
Model : -
IPM Report : IPM 075/66

SN : -

IPM Information

IPM Type : [/] Incoming (IPM Plan) [ ] Post Repair [ ] New Equipment [ ] Re-Call [ ] Other .....

Ambient Temperature : 23.2°C (25°C ±5°C) **Humidity : 55.2**%RH (55% RH±15)

Test Apparatus

Equipment	Manufacturer	Model	Serial No.	Cert. No.	Cal. date
Standard weight	LS	Class M1	I5K106-19,I10K107-19,I20K108-19 to I20K112-19	CM190063	08/02/2019

IPM Result (Reference : ECRI 2008 Institute)

QUALITATIVE TASKS									
PASS	FAIL	N/A	Check	Comment	PASS	FAIL	N/A	Check	Comment
[/]	[ ]	[ ]	Chassis/Housing		[/]	[ ]	[ ]	Circuit Breaker/Fuse	
[/]	[ ]	[ ]	Mount/Fasteners		[/]	[ ]	[ ]	Control/Switches	
[/]	[ ]	[ ]	AC Plug		[/]	[ ]	[ ]	Indicators/Displays	
[/]	[ ]	[ ]	Line Cord		[/]	[ ]	[ ]	Labeling	
[/]	[ ]	[ ]	Strain Relief		[/]	[ ]	[ ]	Accessories	

Electrical Safety Test						
	Criteria Set	Set / Indicated	Measured	PASS	FAIL	N/A
Electrical Safety : [ ] IEC 60101-1 : [ ] IEC62353	**Class of Protection : [ ] CLASS I [ ] CLASS II** **Applied Part Type : [ ] B Type [ ] BF Type [ ] CF Type**					
Mains Voltage	Live to Neutral		Vac.			
	Neutral to Earth		Vac.			
	Live to Earth		Vac.			
Ground Resistance /Protective Earth Resistance	[ ]≤ 0.2Ω [ ]≤ 0.3Ω [ ]≤ 0.5Ω		Ω	[ ]	[ ]	[/]
Chassis/Enclosure Leakage Current	≤ 500µA		µA	[ ]	[ ]	[/]
Earth Leakage Current	[ ]<5,000µA [ ]<10,000µA		µA	[ ]	[ ]	[/]
Patient Leakage Current	[ ]≤ 100 µA (B) [ ]≤ 100 µA (BF)		µA	[ ]	[ ]	[/]
Patient lead leakage current/ Patient Auxiliary current – isolation test	[ ]≤ 100 µA (B) [ ]≤ 100 µA (BF)		µA	[ ]	[ ]	[/]
Main On Apply Part	<50µA		µA	[ ]	[ ]	[/]
Insulation test (optional) 500 V	≥ 2 MΩ	Mains-P.E.	MΩ	[ ]	[ ]	[/]
	≥ 2 MΩ	A.P.-P.E.	MΩ	[ ]	[ ]	[/]
	≥ 2 MΩ	Mains-A.P.	MΩ	[ ]	[ ]	[/]

QUANTITATIVE TASKS(Cont.)						
	Criteria	Set / Indicated	Measured	PASS	FAIL	N/A
Measured Value						
WEA						
Adult (Kg)	±1 Kg	5 Kg	-	[ ]	[ ]	[/]
		10Kg	10.0	[/]	[ ]	[ ]
		20Kg	20.0	[/]	[ ]	[ ]
		40Kg	40.0	[/]	[ ]	[ ]
		60Kg	60.0	[/]	[ ]	[ ]
		80Kg	-	[ ]	[ ]	[/]

PREVENTIVE MAINTENANCE					
Done		**Comment**			
[/]	Clean				
[ ]	Lubricate				
	Replace	**Quantity**	**Unit Price**	**Amount**	**Comment**
[ ]	Battery (Replace Every 18-24 Mount)				
[ ]					
[ ]					
[ ]					
[ ]					
[ ]					
[ ]					
[ ]	Other.....				
		Total			

NOTE

Inspector : .....

(นางสาววิมลรัตน์ ขันทะบุตร)

โรงพยาบาลน่าน
NAN HOSPITAL

Inspection and Preventive Maintenance System Of *Weighing machine*

Biomedical Engineering Department Nan Hospital

Procedure No.IPM-WEA-001 (Period 1 Yr.)/Average Time Required : 90 Minute

STATUS
[/] PASSED
[ ] SERVICE REQUIRED
[ ] REMOVE FROMUSE

Equipment information

Department : ER
Equipment No. : -
Manufacturer : ZIPPER
Location : Phuphiang Hospital

ID Code : WEA-ER-001
IPM Date : 20/07/66
Model : ZT-160
IPM Report : IPM 067/66

SN : 580901340

IPM Information

IPM Type : [/] Incoming (IPM Plan) [ ] Post Repair [ ] New Equipment [ ] Re-Call [ ] Other .....

Ambient Temperature : 23.2°C (25°C ±5°C) **Humidity : 55.2**%RH (55% RH±15)

Test Apparatus

Equipment	Manufacturer	Model	Serial No.	Cert. No.	Cal. date
Standard weight	LS	Class M1	I5K106-19,I10K107-19,I20K108-19 to I20K112-19	CM190063	08/02/2019

IPM Result (Reference : ECRI 2008 Institute)

QUALITATIVE TASKS									
PASS	FAIL	N/A	Check	Comment	PASS	FAIL	N/A	Check	Comment
[/]	[ ]	[ ]	Chassis/Housing		[ ]	[ ]	[/]	Circuit Breaker/Fuse	
[ ]	[ ]	[/]	Mount/Fasteners		[ ]	[ ]	[/]	Control/Switches	
[ ]	[ ]	[/]	AC Plug		[ ]	[ ]	[/]	Indicators/Displays	
[ ]	[ ]	[/]	Line Cord		[ ]	[ ]	[/]	Labeling	
[ ]	[ ]	[/]	Strain Relief		[ ]	[ ]	[/]	Accessories	

Electrical Safety Test						
	Criteria Set	Set / Indicated	Measured	PASS	FAIL	N/A
Electrical Safety : [ ] IEC 60101-1 : [ ] IEC62353	**Class of Protection : [ ] CLASS I [ ] CLASS II** **Applied Part Type : [ ] B Type [ ] BF Type [ ] CF Type**					
Mains Voltage	Live to Neutral		Vac.			
	Neutral to Earth		Vac.			
	Live to Earth		Vac.			
Ground Resistance /Protective Earth Resistance	[ ]≤ 0.2Ω [ ]≤ 0.3Ω [ ]≤ 0.5Ω		Ω	[ ]	[ ]	[/]
Chassis/Enclosure Leakage Current	≤ 500μA		μA	[ ]	[ ]	[/]
Earth Leakage Current	[ ]<5,000μA [ ]<10,000μA		μA	[ ]	[ ]	[/]
Patient Leakage Current	[ ]≤ 100 μA (B) [ ]≤ 10 μA (BF)		μA	[ ]	[ ]	[/]
Patient lead leakage current/ Patient Auxiliary current – isolation test	[ ]≤ 100 μA (B) [ ]≤ 10 μA (BF)		μA	[ ]	[ ]	[/]
Main On Apply Part	<50μA		μA	[ ]	[ ]	[/]
Insulation test (optional) 500 V	≥ 2 MΩ	Mains-P.E.	MΩ	[ ]	[ ]	[/]
	≥ 2 MΩ	A.P.-P.E.	MΩ	[ ]	[ ]	[/]
	≥ 2 MΩ	Mains-A.P.	MΩ	[ ]	[ ]	[/]

Inspection and Preventive Maintenance System Of *Weighing machine*

Biomedical Engineering Department Nan Hospital

QUANTITATIVE TASKS(Cont.)						
	Criteria	Set / Indicated	Measured	PASS	FAIL	N/A
Measured Value						
WEA						
Adult (Kg)	±1 Kg	5 Kg	5.00	[/]	[ ]	[ ]
		10Kg	9.20	[/]	[ ]	[ ]
		20Kg	19.50	[/]	[ ]	[ ]
		40Kg	39.50	[/]	[ ]	[ ]
		60Kg	59.70	[/]	[ ]	[ ]
		80Kg	-	[ ]	[ ]	[/]

PREVENTIVE MAINTENANCE					
Done		**Comment**			
[/]	Clean				
[ ]	Lubricate				
	Replace	**Quantity**	**Unit Price**	**Amount**	**Comment**
[ ]	Battery (Replace Every 18-24 Mount)				
[ ]					
[ ]					
[ ]					
[ ]					
[ ]					
[ ]					
[ ]	Other.....				
		Total			

NOTE

Inspector : .....

(นางสาววิมลรัตน์ ขันทะบุตร)

Dr. Calibration
A 3N HOLDING COMPANY

Doctor Calibration Co., Ltd.

44/6 Suthisarnvinitchai Rd., Samsennok, Huay Kwang, Bangkok 10310 THAILAND
Tel: (66) 0 2277 8557 | Fax: (66) 0 2277 8558 | E-mail: info@doctorcalibration.com

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NSC-TISI-TIS 17025
CALIBRATION 0158

Certificate Number : DC_01/24/2924

Booking Number : 14896

Calibration Certificate

Equipment	:	Piston pipette
Manufacturer	:	Sartorius
Model	:	Proline 10 - 100 µl
Serial No.	:	15586940
ID.No.	:	CM-LAB-PIP-001
Customer	:	Phu Phiang Hospital 392 Moo 3 T.Muang Tued A.Phu Phiang Nan 55000, Thailand.
Location	:	4th Floor, Volumetric Laboratory Room. (Doctor Calibration Co., Ltd.)
Date of Receive	:	March 28, 2024
Date of Calibration	:	April 2, 2024
Date of Issue	:	April 3, 2024
Ambient Temperature	:	(20.5 ± 1.5)°C
Relative Humidity	:	(60 ± 15) %
Pressure	:	(1013 ± 5) mbar
Calibration Procedure	:	CP-01 Based on ISO 8655-6, 2 : 2002
Calibrated By	:	Miss. Thitirat Kaewtoy Calibration Engineer

Approved By:

(Miss Pawan Puangjan)
Technical Manager

Dr. Calibration
A 3N HOLDING COMPANY

Doctor Calibration Co., Ltd.

44/6 Suthisarnvinitchai Rd., Samsennok, Huay Kwang, Bangkok 10310 THAILAND
Tel: (66) 0 2277 8557 | Fax: (66) 0 2277 8558 | E-mail: info@doctorcalibration.com

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THAILAND

NSC-TISI-TIS 17025
CALIBRATION 0158

Certificate Number : DC_01/24/2924

Booking Number : 14896

Reference standard instrument

- This certificate is traceable to The international system of units (SI units) via

	Instrument	Model	Serial No.	Cert.No.	Traceability	Due Date
1.	Electronic Balance	SAG 105	1128411152	23BCI0193	Sartorius	27 April 2024
2.	Thermometer	ASTM 56 C-86	0715181	L202306114-001	MIT	20 June 2024

Adjustment

☑ Without Adjustment ☐ Before Adjustment ☐ After Adjustment

Calibration Results

Test Volume	Measured Volume	Systematic error		Random error		Uncertainty	Coverage factor (k)
10.00 µl	10.1794 µl	0.1794 µl	0.1794 %	0.0419 µl	0.0411 %	± 0.050 µl	2.13
20.00 µl	20.2325 µl	0.2325 µl	0.2325 %	0.0640 µl	0.0633 %	± 0.053 µl	2.13
100.00 µl	100.0724 µl	0.0724 µl	0.0724 %	0.0503 µl	0.0502 %	± 0.18 µl	2.14

- The reported expanded uncertainty of measurement is based on a standard uncertainty of measurement multiply by a coverage factor k as listed, providing a confidence level of approximately 95 %.

Test Specification

Nominal Volume	Systematic error		Random error	
100.00 µl	± 0.8 µl	0.8 %	≤ 0.3 µl	0.3 %

Peripheral Equipment

Manufacturer : Sartorius
Tip type : Optifit Tip
Tip size : 200 µl

Comments

This certificate is valid only to the item calibrated on date and place of calibration.

-o0o-

Dr. Calibration
A 3N HOLDING COMPANY

Doctor Calibration Co., Ltd.

44/6 Suthisarnvinitchai Rd., Samsennok, Huay Kwang, Bangkok 10310 THAILAND
Tel: (66) 0 2277 8557 | Fax: (66) 0 2277 8558 | E-mail: info@doctorcalibration.com

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THAILAND

NSC-TISI-TIS 17025
CALIBRATION 0158

Certificate Number : DC_01/24/2925

Booking Number : 14896

Calibration Certificate

Equipment	:	Piston pipette
Manufacturer	:	Sartorius
Model	:	Proline 20 - 200 µl
Serial No.	:	15601713
ID.No.	:	CM-LAB-PIP-002
Customer	:	Phu Phiang Hospital 392 Moo 3 T.Muang Tued A.Phu Phiang Nan 55000, Thailand.
Location	:	4th Floor, Volumetric Laboratory Room. (Doctor Calibration Co., Ltd.)
Date of Receive	:	March 28, 2024
Date of Calibration	:	April 2, 2024
Date of Issue	:	April 3, 2024
Ambient Temperature	:	(20.5 ± 1.5)°C
Relative Humidity	:	(60 ± 15) %
Pressure	:	(1013 ± 5) mbar
Calibration Procedure	:	CP-01 Based on ISO 8655-6, 2 : 2002
Calibrated By	:	Mrs. Paramaporn Suwannakan Calibration Engineer

Approved By:

(Miss Pawan Puangjan)
Technical Manager

Dr. Calibration
A 3N HOLDING COMPANY

Doctor Calibration Co., Ltd.

44/6 Suthisarnvinitchai Rd., Samsennok, Huay Kwang, Bangkok 10310 THAILAND
Tel: (66) 0 2277 8557 | Fax: (66) 0 2277 8558 | E-mail: info@doctorcalibration.com

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THAILAND

NSC-TISI-TIS 17025
CALIBRATION 0158

Reference standard instrument

- This certificate is traceable to The international system of units (SI units) via

	Instrument	Model	Serial No.	Cert.No.	Traceability	Due Date
1.	Electronic Balance	MCE225S 2S00 A	0039001967	23BNA0102	Sartorius	27 April 2024
2.	Thermometer	ASTM 56 C-86	0715181	L202306114-001	MIT	20 June 2024

Adjustment

☑ Without Adjustment ☐ Before Adjustment ☐ After Adjustment

Calibration Results

Test Volume	Measured Volume	Systematic error		Random error		Uncertainty	Coverage factor (k)
50.00 µl	50.0791 µl	0.0791 µl	0.0395 %	0.0271 µl	0.0135 %	± 0.18 µl	2.13
75.00 µl	75.1333 µl	0.1333 µl	0.0666 %	0.0429 µl	0.0214 %	± 0.18 µl	2.16
200.00 µl	200.4727 µl	0.4727 µl	0.2363 %	0.0456 µl	0.0227 %	± 0.19 µl	2.18

- The reported expanded uncertainty of measurement is based on a standard uncertainty of measurement multiply by a coverage factor k as listed, providing a confidence level of approximately 95 %.

Test Specification

Nominal Volume	Systematic error		Random error	
200.00 µl	± 1.6 µl	0.8 %	≤ 0.6 µl	0.3 %

Peripheral Equipment

Manufacturer : Sartorius
Tip type : Optifit Tip
Tip size : 200 µl

Comments

This certificate is valid only to the item calibrated on date and place of calibration.

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