

# Schedule

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Certificate No. : LA-2007-0373-C  
Issue No. : 19  
Date : 10 February 2025  
Expiry of Certificate : 27 February 2029  
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FIELD OF TESTING : Calibration and Measurement

| MEASURED QUANTITIES /<br>RANGE / INSTRUMENT<br>TO BE CALIBRATED                                                                                                                                                                                                                            | METHOD                                          | CALIBRATION &<br>MEASUREMENT<br>CAPABILITIES (CMC *)                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>A. VOLUMETRIC</b>                                                                                                                                                                                                                                                                       |                                                 |                                                                                                                         |
| 1. Piston Pipettes (EX)                                                                                                                                                                                                                                                                    |                                                 |                                                                                                                         |
| a. Single & Multi-Channel,<br>Air Displacement<br>Calibration Volume:<br>(0.1 to 10) µL<br>(>10 to 20) µL<br>(>20 to 30) µL<br>(>30 to 50) µL<br>(>50 to 100) µL<br>(>100 to 200) µL<br>(>200 to 300) µL<br>(>300 to 1000) µL<br>(>1000 to 1250) µL<br>(>1250 to 5000) µL<br>(>5 to 10) mL | In-House Procedure (BioCal™)<br>BF-SOP-01 (R21) | 0.013 µL<br>0.014 µL<br>0.017 µL<br>0.019 µL<br>0.07 µL<br>0.09 µL<br>0.10 µL<br>0.14 µL<br>0.24 µL<br>1.0 µL<br>2.1 µL |
| b. Single Channel, Positive<br>Displacement<br>Calibration Volume:<br>(1 to 10) µL<br>(>10 to 25) µL<br>(>25 to 50) µL<br>(>50 to 100) µL<br>(>100 to 1000) µL                                                                                                                             | In-House Procedure (BioCal™)<br>BF-SOP-01 (R21) | 0.015 µL<br>0.031 µL<br>0.028 µL<br>0.06 µL<br>0.09 µL                                                                  |

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| MEASURED QUANTITIES /<br>RANGE / INSTRUMENT<br>TO BE CALIBRATED                                                                                                                                                                                                      | METHOD                                          | CALIBRATION &<br>MEASUREMENT<br>CAPABILITIES (CMC *)                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| <p>c. Single Channel, Repetitive Calibration Volume:</p> <p>(1 to 20) µL</p> <p>(&gt;20 to 100) µL</p> <p>(&gt;100 to 500) µL</p> <p>(&gt;500 to 1000) µL</p> <p>(&gt;1000 to 5000) µL</p> <p>(&gt;5 to 10) mL</p> <p>(&gt;10 to 25) mL</p> <p>(&gt;25 to 50) mL</p> | In-House Procedure (BioCal™)<br>BF-SOP-01 (R21) | <p>0.017 µL</p> <p>0.031 µL</p> <p>0.07 µL</p> <p>0.13 µL</p> <p>0.38 µL</p> <p>0.9 µL</p> <p>1.8 µL</p> <p>3.3 µL</p> |
| <p>2. Dispensers<br/>(Piston Operated, EX)<br/>Calibration Volume:</p> <p>(0.05 to 0.5) mL</p> <p>(&gt;0.5 to 2) mL</p> <p>(&gt;2 to 10) mL</p> <p>(&gt;10 to 25) mL</p> <p>(&gt;25 to 100) mL</p>                                                                   | In-House Procedure (BioCal™)<br>BF-SOP-01 (R21) | <p>0.16 µL</p> <p>0.24 µL</p> <p>1.3 µL</p> <p>5.8 µL</p> <p>6.4 µL</p>                                                |
| <p>3. Burettes<br/>(Piston Operated, EX)<br/>Calibration Volume:</p> <p>(1 to 25) mL</p> <p>(&gt;25 to 50) mL</p>                                                                                                                                                    | In-House Procedure (BioCal™)<br>BF-SOP-01 (R21) | <p>1.7 µL</p> <p>2.7 µL</p>                                                                                            |
| <p>4. Dilutors (Piston Operated)<br/>Sample Volume (IN) or<br/>Diluent Volume (EX)</p> <p>(2.5 to 25) mL</p> <p>(&gt;25 to 50) mL</p>                                                                                                                                | In-House Procedure (BioCal™)<br>BF-SOP-01 (R21) | <p>0.0023 mL</p> <p>0.0043 mL</p>                                                                                      |
| <p>5. Precision Laboratory<br/>Syringes (EX)<br/>Calibration Volume:</p> <p>(0.2 to 25) µL</p> <p>(&gt;25 to 50) µL</p> <p>(&gt;50 to 100) µL</p> <p>(&gt;100 to 1000) µL</p> <p>(&gt;1000 to 5000) µL</p>                                                           | In-House Procedure (BioCal™)<br>BF-SOP-01 (R21) | <p>0.013 µL</p> <p>0.014 µL</p> <p>0.021 µL</p> <p>0.08 µL</p> <p>0.46 µL</p>                                          |

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| MEASURED QUANTITIES /<br>RANGE / INSTRUMENT<br>TO BE CALIBRATED                                                                                                                                                                    | METHOD                                          | CALIBRATION &<br>MEASUREMENT<br>CAPABILITIES (CMC *)                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| 6. Peristaltic Pump (EX)<br>Calibration Flow Rate:<br>2 µL/min<br>(>2 to 90) µL/min<br>(>90 to 840) µL/min<br>(>840 to 5000) µL/min<br>(>5 to 24) mL/min<br>(>24 to 100) mL/min<br>(>100 to 1000) mL/min<br>(>1000 to 5000) mL/min | In-House Procedure (BioCal™)<br>BF-SOP-01 (R21) | 0.024 µL/min<br>0.037 µL/min<br>3.6 µL/min<br>24 µL/min<br>0.15 mL/min<br>0.41 mL/min<br>4.7 mL/min<br>24 mL/min |
| 7. Volumetric Flasks (IN)<br>Calibration Volume:<br>(5 to 10) mL<br>(>10 to 20) mL<br>(>20 to 25) mL<br>(>25 to 50) mL<br>(>50 to 100) mL<br>(>100 to 250) mL<br>(>250 to 500) mL<br>(>500 to 1000) mL<br>(>1000 to 2000) mL       | In-House Procedure (BioCal™)<br>BF-SOP-05 (R07) | 0.0045 mL<br>0.0074 mL<br>0.011 mL<br>0.014 mL<br>0.018 mL<br>0.020 mL<br>0.038 mL<br>0.073 mL<br>0.12 mL        |
| 8. Graduated Cylinders (IN)<br>Calibration Volume:<br>(1 to 10) mL<br>(>10 to 25) mL<br>(>25 to 50) mL<br>(>50 to 100) mL<br>(>100 to 250) mL<br>(>250 to 500) mL<br>(>500 to 1000) mL<br>(>1000 to 2000) mL<br>(>2000 to 5000) mL | In-House Procedure (BioCal™)<br>BF-SOP-05 (R07) | 0.013 mL<br>0.027 mL<br>0.049 mL<br>0.069 mL<br>0.12 mL<br>0.23 mL<br>0.39 mL<br>0.62 mL<br>3.0 mL               |
| 9. Glass Burettes (EX)<br>Calibration Volume:<br>(1 to 10) mL<br>(>10 to 25) mL<br>(>25 to 50) mL                                                                                                                                  | In-House Procedure (BioCal™)<br>BF-SOP-05 (R07) | 0.0033 mL<br>0.0059 mL<br>0.0093 mL                                                                              |

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| MEASURED QUANTITIES /<br>RANGE / INSTRUMENT<br>TO BE CALIBRATED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | METHOD                                          | CALIBRATION &<br>MEASUREMENT<br>CAPABILITIES (CMC *)                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>B. MECHANICAL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                 |                                                                                                                                                                                                           |
| 1. Weighing Balances<br>In-House Calibration using<br>OIML Class E <sub>1</sub> weights:<br>Range Resolution<br>(0 to 5) g 0.001 mg<br>(0 to 22) g 0.001 mg<br>(0 to 50) g 0.01mg<br>(0 to 100) g 0.01 mg<br><br>On-Site Calibration using<br>OIML Class E <sub>2</sub> weights:<br>Range Resolution<br>(0 to 2) g 0.1 µg<br>(0 to 5) g 0.001 mg<br>(0 to 6) g 0.001 mg<br>(0 to 52) g 0.001 mg<br>(0 to 40) g 0.01 mg<br>(0 to 100) g 0.01 mg<br>(0 to 230) g 0.01 mg<br>(0 to 220) g 0.1 mg<br>(0 to 230) g 0.1 mg<br>(0 to 520) g 0.1 mg<br>(0 to 2300) g 0.001 g<br>(0 to 6100) g 0.01 g<br>(0 to 12,000) g 0.01 g<br>(0 to 15,000) g 0.1 g | In-House Procedure (BioCal™)<br>BF-SOP-03 (R12) | 0.012 mg<br>0.023 mg<br>0.05 mg<br>0.10 mg<br><br><br>0.024 mg<br>0.032 mg<br>0.048 mg<br>0.067 mg<br>0.09 mg<br>0.13 mg<br>0.24 mg<br>0.3 mg<br>0.4 mg<br>0.6 mg<br>0.003 g<br>0.02 g<br>0.03 g<br>0.2 g |
| 2. Rotational Speed Measurement<br>In-House/On-Site:<br>(0 to 20,000) rpm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | In-House Procedure (BioCal™)<br>BF-SOP-09 (R06) | 5.7 rpm                                                                                                                                                                                                   |
| 3. Time Measurement<br>In-House/On-Site:<br>(1 to 60) s<br>(61 to 10800) s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | In-House Procedure (BioCal™)<br>BF-SOP-09 (R06) | 0.077 s<br>0.21 s                                                                                                                                                                                         |

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| MEASURED QUANTITIES /<br>RANGE / INSTRUMENT<br>TO BE CALIBRATED                                                        | METHOD                                          | CALIBRATION &<br>MEASUREMENT<br>CAPABILITIES (CMC *) |
|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------------------------------------------------------|
| <b>C. TEMPERATURE</b>                                                                                                  |                                                 |                                                      |
| 1. Centrifuges<br>In-House/On-Site:                                                                                    | In-House Procedure (BioCal™)<br>BF-SOP-09 (R06) |                                                      |
| a) Sample Temperature<br>(4 to 25) °C                                                                                  |                                                 | 0.64 °C                                              |
| b) Chamber Temperature<br>(4 to 25) °C                                                                                 |                                                 | 0.62 °C                                              |
| 2. Thermocyclers (PCR Systems)<br>In-House/On-Site:<br>Using MTAS™ System with<br>Up to 15 Temperature Sensors         | In-House Procedure (BioCal™)<br>BF-SOP-04 (R05) |                                                      |
| Values in order of cycling<br>temperatures:                                                                            |                                                 |                                                      |
| 95 °C                                                                                                                  |                                                 | 0.29 °C                                              |
| 30 °C                                                                                                                  |                                                 | 0.29 °C                                              |
| 90 °C                                                                                                                  |                                                 | 0.29 °C                                              |
| 50 °C                                                                                                                  |                                                 | 0.28 °C                                              |
| 70 °C                                                                                                                  |                                                 | 0.29 °C                                              |
| 60 °C                                                                                                                  |                                                 | 0.29 °C                                              |
| 3. Temperature Enclosures<br>(Fridge, Freezers, Incubators,<br>Ovens, Furnaces & Liquid Baths)<br>On-Site Calibration: | In-House Procedure (BioCal™)<br>BF-SOP-06 (R07) |                                                      |
| (-86 to -81) °C                                                                                                        |                                                 | 0.80 °C                                              |
| (-80 to -21) °C                                                                                                        |                                                 | 0.59 °C                                              |
| (-20 to 100) °C                                                                                                        |                                                 | 0.49 °C                                              |
| (101 to 200) °C                                                                                                        |                                                 | 0.65 °C                                              |
| (201 to 600) °C                                                                                                        |                                                 | 3.9 °C                                               |
| 4. Heating Block / Dry Bath<br>In-House/On-Site:                                                                       | In-House Procedure (BioCal™)<br>BF-SOP-07 (R02) |                                                      |
| (4 to 100) °C                                                                                                          |                                                 | 0.66 °C                                              |
| (101 to 150) °C                                                                                                        |                                                 | 0.79 °C                                              |



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\* CMC is expressed as an expanded uncertainty estimated at a level of confidence of approximately 95%.

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## Approved Signatories:

|                             |                                                   |
|-----------------------------|---------------------------------------------------|
| Mr Sim Koon Meng            | - For all calibration except item B2, C1, C4 & C5 |
| Ms Quek Wang Sim            | - For all calibration                             |
| Ms Lim Pei San              | - For all calibration except item A               |
| Ms Veronica                 | - For item A & B1                                 |
| Ms Nirusha Nair A/P N Kumar | - For item C3                                     |
| Ms Le Thi Hoang Anh         | - For item C5                                     |

## Note:

This laboratory is accredited in accordance with the recognised International Standard ISO/IEC 17025. A laboratory's fulfilment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and **management system requirements** that are necessary for it to consistently deliver technically valid calibration results. The **management system requirements** in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001.