**SCOPE 3 ЛК**

**Sofia, 14.06.2024**

**METROLAB LTD**

**INTERLAB LABORATORY COMPLEX**

**Management Address:** 1359 Sofia, Lyulin, Bl. 408, Ent. A, Floor 2, Apt. 11   
**Laboratory Address:** 1574 Sofia, Slatina, 13 Prof. Tsvetan Lazarov Blvd.

**To perform calibrating of:**

| **Type of the scope:** *fixed* | | | | | |
| --- | --- | --- | --- | --- | --- |
| **№** | **Measuring instrument** | **Measured value, unit of measure** | **Measurement Range** | **Measurement uncertainty** | **Calibration method** |
| **1** | **2** | **З** | **4** | **5** | **6** |
| 1. | Non-automatic scales, Accuracy class I | Mass,  Kg | up to 0,5 Kg | 1,1.10-5 g | LKI 08-05:2024 |
| Accuracy class II | up to 1 Kg | 8,9.10-4 g |
| up to 10 Kg | 6,5.10-2 g |
| up to 60 Kg | 0,1 g |
| Accuracy class III and IIII | up to 1 Kg | 0,01 g |
| up to 10 Kg | 0,2 g |
| up to 150 Kg | 4,2 g |
| 2. | Wind velocity  measuring devices | Velocity  m/s | from 0,15 m/s  to 2,04 m/s | 0,060 m/s | LKI 10-05:2024 |
| from 2,02 m/s  to 29,83 m/s | from 0,06 m/s to  0,5 m/s |
| 3. | Thermometers (digital,analog) | Temperature,  °С | from minus 50°С  to 20°С | from 0,3 °C  to 0,05 °С | LKI 14-11:2024 |
| from 20°C to 400 °С | from 0,05 °C  to 0,3 °С |
| from 400°C to 700 °С | from 0,3 °С  tо 2,2 °С |
| from 700°С  tо 1200 °С | from 2,2 °C  to 3,0 °С |
| 4. | Infrared thermometers | Temperature,  °С | from 20°C to 350 °С | from 0,4 °C  to 0,8 °С | LKI 14-11:2024 |
| 5. | Thermometers  (glass - liquids) | Temperature,  °С | from minus 50°С  to 20 °С | from 0,3 °C  to 0,05 °С | LKI 13-11:2024 |
| from 20°С  to 200°С | from 0,05 °C  to 0,19 °С |
| from 200°C  to 600°С | from 0,19 °С  tо 2,2 °С |
| 6. | Temperature measuring transducers | Temperature,  °С | Resistive - from minus 50 °С to 100°С | from 0,18 °C  to 0,25 °С | LKI 15-06:2024 |
| over 100 °С to 400°С | from 0,25 °C  to 1,3 °С |
| thermocouple  from minus 50°С  to 400°С | 0,48 °С |
| over 400 °С  to 1200°С | from 0,49 °C  to 1,6 °С |
| 7. | Secondary  appliances, temperature indicators | Temperature,  °С | Input for a thermal transformer (RTD)  from minus 40 °С  to 600 °С | 0,1 °С | LKI 16-06:2024 |
| Input for thermocouples (ТС)  from minus 40 °С  tо 1200 °С | up tо 0,4 °С |
| 8. | Instruments for relative humidity measuring | Relative humidity,  % гh | from 20 % гh  tо 85 % rh | from 1,2 % гh  tо 1,4 % гh | LKI 12-09:2024 |
| 9. | pH Meters | Hydrogen index pH | from 2 рН tо 12 рН | from 1,8.10-2 рН  tо 5. 10-2 рН | LKI 09-05:2024 |
| 10. | Conductometers | Specific conductivity of electrolytes, µS/cm; mS/cm | from 1,3 µS/сm  tо 111,3 mS/сm | from 0,02 µS/сm  tо 1,6 mS/сm | LKI 01-09:2024 |
| 11. | Calorimeters | Combustion energy J/g | from 26400 J/g  to 26600 J/g | 6 J/g | LKI 04-09:2024 |
| 12. | Spectrophoto-meters for the ultraviolet and visible areas for the wavelength | Spectral coefficient of т(λ), % transmission, geometry % relative to air | from 7 % to 93 %  at λ from 250 nm  tо 820 nm | from 0,28 %  tо 1,4 % | LKI 07-04:2024 |
| Spectral optical density,  D(λ),  geometry % relative to air | from 0,02 tо 1,12  at λ from 250 nm  to 820 nm | from 7.10-3  tо 1,2.10-2 | LKI 07-04:2024 method of calculation |
| Wave length λ,  nm | from 241 nm  tо 638 nm | from 0,3 nm  to 1 nm | LKI 07-04:2024 |

**References:**

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| 1. | LKI 01-09:2024 | Methodology for the calibration of conductivity meters using certified comparative materials for the specific electrical conductivity of electrolytes. |
| 2. | LKI 04-09:2024 | Calorimeter calibration methodology. |
| 3. | LKI 07-04:2024 | Methodology for the calibration of spectrophotometers operating in the ultraviolet and visible area of the optical spectrum. |
| 4. | LKI 08-05:2024 | Methodology for the calibration of non-automatic scales. |
| 5. | LKI 09-05:2024 | Methodology for the calibration of pH meters. |
| 6. | LKI 10-05:2024 | Methodology for the calibration of instruments for measuring air velocity. |
| 7. | LKI 12-09:2024 | Methodology for the calibration of devices for measuring relative humidity of the air. |
| 8. | LKI 13-11:2024 | Methodology for the calibration of glass-liquid thermometers. |
| 9. | LKI 14-11:2024 | Methodology for the calibration of digital, analog and infrared thermometers. |
| 10. | LKI 15-06:2024 | Methodology for the calibration of measuring temperature transducers. |
| 11. | LKI 16-06:2024 | Methodology for the calibration of secondary temperature measuring instruments. |

**Notes:**

1. The calibration of the measuring instruments, referred to in item 2, shall be performed in the laboratory.
2. The calibration of the measuring instruments referred to in item 3, item 4, item 5, item 6, item 7, item 8, item 9, item 10 and item 12 shall be performed in the laboratory, or at the customer's site.
3. The calibration of the measuring instruments referred to in items 1 and 11 shall be performed on site at the customer's location.