



Certificate no.: 02322-121654
Publication date: 25 Mrt. 2002

Certificate of Thermal Validation

CYCLERtest BV and its authorized distributor declare that the described xxxxxxxx thermal cycling apparatus, manufactured by xxxxxxxxxx., conforms to the specified temperature standard and the thermal parameters apply to the Thermal Performance Category.

- Validated Instrument:** xxxxxxxx instrument, serial no.: xxxxxxxx in combination with the following block unit, serial no.: xxxxxxxx, 96 wells sample block.
- Measured Accuracy:** All points measured in the block, 15 defined positions across the sample block, have an average temperature accuracy of 0.30°C at 90°C. Thermal Performance Category I covers this value.
- Measured Uniformity:** All points measured in the block, 15 defined positions across the sample block, have a total spread of 0.46°C maximum at 90°C. Thermal Performance Category I covers this value.
- Test Procedure:** 15 NIST-traceable probes measure temperature at different defined points of the sample block of the device, monitored through a GENOtronics Mobile Temperature Acquisition System, specified below. Measurements are made on all temperature channels simultaneously at 0.5 seconds intervals (2Hz) at several temperature levels as defined in the *MTAS™ Thermal Cycler Validation Procedure*. The parameters of the above-mentioned thermal cycler are tested at 90°C, thirty seconds after the thermal cycler indicates it has arrived at 90°C
- Applicable Scale:** International Temperature Scale of 1990 (ITS-90)
- Source of Standard:** Thermometry Group, Process Measurements Division, Chemical Science and Technology Laboratory, U.S. National Institute of Standards & Technology (NIST)
- Calibration:** MTAS-16™ equipment (serial no.: 3109) with NIST-traceable CyclerProbe™ set (type 16 x 0.2ml, serial no 000410-01), which is periodically calibrated by immersion in a stirred High Precision Oil Bath, monitored by a NIST-calibrated Laboratory Grade Temperature Standard read through a NMi-VSL calibrated 4-wire resistance meter.
- Calibration Uncertainty:** 90.000 ± 0.023°C
The expanded uncertainty of the measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k = 2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

CYCLERtest bv and its authorized distributor certify that the unit's thermal validation and performance have been tested, and conforms to the temperature scale, accuracy, and uniformity specified above. Periodic re-testing is recommended at least once a year or after 250 runs, or more frequently according to other standards or requirements that may apply to the unit's use.

Date of Test

Valid Until

CYCLERtest's Certified Engineer