	Technical Specification for Verification and Inspection of Thermometers	S/N	CNMV 7
		Rev.	3

1. This Technical Specification is developed pursuant to Paragraph 2, Articles 14 and 16 of the Weights and Measures Act.
2. The date of promulgation, document number, date of enforcement and content of amendment are listed as follows:

Rev.	Date of Promulgation	Document No. (Ching-Piao-Szu-Tsu)	Date of Enforcement	Content of Amendment
1	2.06.2003	No.09240005170	01.07.2003	
2	11.14.2005	No.09440004100	01.01.2007	Extend the scope to electrical themometers and set the requirements of verification and inspection for rlectrical thermometers.
3	12.26.2007	No.09640006550	01.01.2008	Indentify the scope and set the measuring range and temperatures for verification of basal themometers.

Date of Promulgation	Bureau of Standards, Metrology and Inspection, Ministry of Economic Affairs	Date of Enforcement
12.26.2007		**01.01.2008**

1. Scope: this specification applies to mercury thermometers for human use (hereinafter referred to as "thermometers") and subject to verification and inspection. This specification covers the mercury in glass type and electrical type. The thermometers use for measuring skin temperature is excluded from this specification.

2. Definition: A maximum device is the component of a thermometer that monitors over a specified time the temperature measured by a probe in contact with a body cavity or tissue, after which it indicates the maximum temperature and maintains the indication until reset by the user.

3. Structure

3.1 A thermometer shall bear the manufacturer's name or trademark.

3.2 The unit of temperature is the degree Celsius, symbol °C.

3.3 The minimum scale interval of a thermometer shall not be more than 0.1 °C.

3.4 The measuring range shall be a minimum of 35.5 °C to 42.0 °C, and the range 35.5 °C to 42.0 °C shall be continuous. However, the basal thermometer's measuring range can be from 35.5 °C to 38.0 °C.

3.5 After passing the retaining point, the temperature sensing liquid of a thermometer shall not decline voluntarily and shall be driven down to the original position easily. This sentence applies to mercury in glass type only.

3.6 The graduation lines of the mercury in glass type thermometers shall be clear and easy to distinguish, and not be easy to erode.

3.7 The numbering of the line corresponding to 37 °C on a mercury in glass type thermometer may be indicated by a different color or marking.

3.8 The mercury in glass type thermometers shall be of the prismatic magnifying type.

3.9 The digital display of temperature of a electrical thermometer shall be complete without broken or incomplete.

4. Verification, inspection and maximum permissible errors

4.1 Verification and inspection equipment:

(1) Reference thermometer: the measuring range of the reference shall be a minimum of 35.5 °C to 42.0 °C with an expanded uncertainty no greater than 0.03 °C (calculated for a coverage factor k = 2). The calibration shall be traceable to national measurement standards.

(2) Reference water bath: a well-regulated and stirred water bath containing at least one litre in volume shall be used to establish reference temperatures over the measuring range for conducting various performance tests on an instrument. The bath shall be controlled to a temperature stability of better than ± 0.02 °C over the specified temperature range and shall not have a temperature gradient greater than ± 0.01 °C within its working space at a specified temperature. This temperature gradient shall be assured under all conditions and methods of loading temperature probes.

(3) Centrifuge.

4.2 Verification and inspection of errors of a thermometer shall be carried out at three temperatures: 35.5 °C, 37 °C and 41 °C. However, a basal thermometer with mercury in glass type can be carried out at two temperatures: 35.5 °C and 37 °C only.

4.3 The retaining point of a thermometer shall be verified with the following method to confirm whether it conforms to the provision of Section 3.5.

4.3.1 Place the thermometer on a centrifuge driving the mercury column down to beneath the minimum graduation line.

4.3.2 Invert the thermometer with a horizontal inclination of 10 degrees, mercury must not pass through the retaining point.

4.4 The maximum permissible errors of verification of thermometers shall be ±0.1 °C.

4.5 The maximum permissible errors of in-service inspection shall be as same as the maximum permissible errors of verification.

5. The verification compliance marks: the mark shall be attached to a prominent place of the body of the thermometer.