



INTERNATIONAL TELECOMMUNICATION UNION

CCITT

THE INTERNATIONAL
TELEGRAPH AND TELEPHONE
CONSULTATIVE COMMITTEE

O.3

(11/1988)

SERIES O: SPECIFICATIONS FOR MEASURING
EQUIPMENT

General

**CLIMATIC CONDITIONS AND RELEVANT TESTS
FOR MEASURING EQUIPMENT**

Reedition of CCITT Recommendation O.3 published in the
Blue Book, Fascicle IV.4 (1988)

NOTES

1 CCITT Recommendation O.3 was published in Fascicle IV.4 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

2 In this Recommendation, the expression “Administration” is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Recommendation O.3

CLIMATIC CONDITIONS AND RELEVANT TESTS FOR MEASURING EQUIPMENT

(Melbourne, 1988)

1 General

The Recommendations of the Series O specify measuring equipment for a wide range of applications. Reliable test equipment is an important prerequisite when maintaining telecommunication equipment and telecommunication networks. The reliability of measuring equipment can be affected by the environmental conditions to which the equipment is exposed to during its use.

This Recommendation gives a range of climatic conditions for the operation of measuring equipment specified in the Series O Recommendations. In addition, climatic conditions for transportation and storage of measuring equipment are defined.

In order to be able to prove that the requirements of this Recommendation are fulfilled, test conditions simulating the various environmental parameters are specified.

Where possible, this Recommendation is based on standards produced by other bodies such as the international electrotechnical commission (IEC) [1]; (CEPT) [2].

2 Climatic conditions for the operation of measuring equipment

2.1 Operation in indoor rooms

Considering that measuring equipment will be used in most of the cases in weather—protected locations, the normal operating conditions specified in Figure 1/O.3 define the range of climatic conditions under which the equipment specifications shall be met. These conditions may be found in normal working areas, offices, telecommunication centres or storage rooms for sensitive products, etc.

The normal operating conditions are maintained by heating, cooling and, where necessary, by forced ventilation. Humidity may normally not be controlled.

Figure 1/O.3 implies that the measuring equipment is usually operated at a temperature of approximately 25° C at a relative humidity of 45%.

The dotted field in the centre of the climatogram of Figure 1/O.3 specifies the climatic conditions which will be experienced during 90% of the time.

The exceptional operating conditions shown in Figure 1/O.3 may exist, e.g. following failure of the climate controlling system. Under these conditions the measuring equipment shall still operate without irreversible faults. However, the measurement may be less accurate.

In some instances the measuring equipment may be exposed to solar radiation and to heat radiation from other sources (e.g. from room heating). Direct solar radiation should be avoided and the temperature in the vicinity of the equipment shall not exceed the limits of Figure 1/O.3

The equipment may also be exposed to movements of the surrounding air due to draughts in buildings (e.g. through open windows). It shall not be subjected to condensation or precipitation.

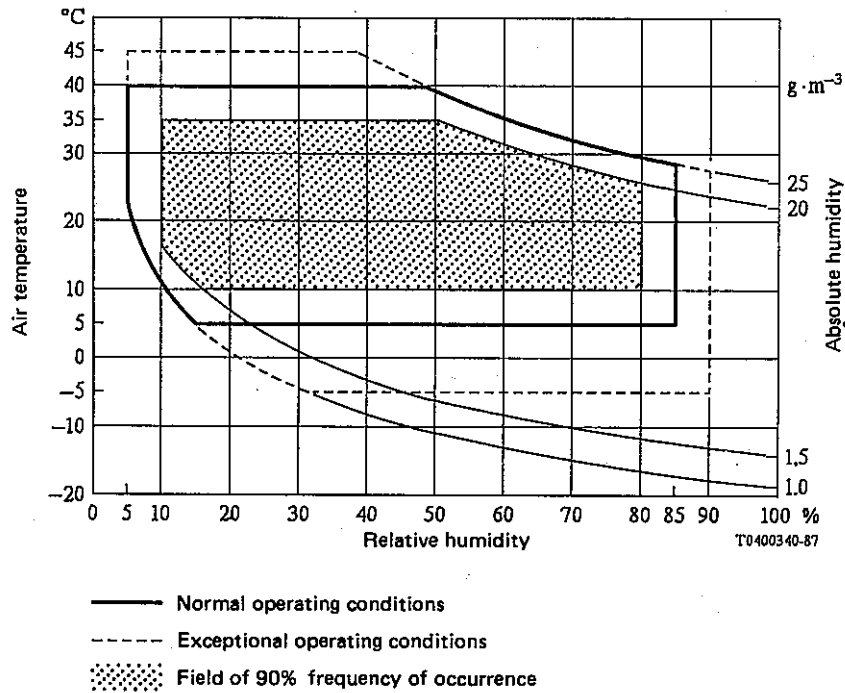


FIGURE 1/O.3
**Temperature-humidity-chart for the operation of measuring equipment
(weather-protected locations)**

2.2 *Operation of measuring equipment in other environments*
Under study.

3 **Transportation and storage**

During transportation and storage the measuring equipment shall tolerate temperatures between -40°C and $+70^{\circ}\text{C}$ without irreversible failure. For relative humidities higher than 45% and temperatures higher than 25°C the limits of the climatogram of Figure 1/O.3 shall not be exceeded for any humidity/temperature combination. In this case the (uninterrupted) exposure time is limited to 2 months.

Note 1 – It is assumed that the measuring equipment is packed in its usual shipping container and that the ambient conditions mentioned above are those outside the package.

Note 2 – This requirement is provisional and requires further study.

4 **Test conditions**

4.1 *Testing conditions for indoor climates*

It is assumed that the measuring equipment meets the requirements of § 2.1 if it tolerates the basic environmental testing procedures in accordance with IEC Publication 68-2-3 [3].

During these testing procedures, the measuring equipment shall be placed in the testing chamber for 4 days. After a recovery time of 2 hours the test specimen shall properly function and the specified error limits shall not be exceeded.

Note – This requirement is provisional and requires further study.

4.2 *Testing conditions for other environments*

Under study.

References

- [1] IEC Publication 731-3 *Classification of Groups of Environmental Parameters and their Severities*.
IEC-Publication 721-3-3 *Stationary Use at Weather-Protected Locations*.
- [2] CEPT Recommendation T/TRw, Part B-3 *Environmental Conditions and Environmental Tests for Telecommunications Equipment*. (October 1987).
- [3] IEC-Publication 68-2-3 *Basic Environmental Testing Procedures. Part 2: Test Ca: Damp heat, steady state*.

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