

DOCUMENT NO: MG-000	TITLE: Measurement Guidelines -- General	PAGE: 1 of 2
APPLICATION:	REVISION: 1/6/08	DATE: 1/6/08

PURPOSE:	To establish guidelines for the measurement of loudspeaker components ("parts"), including defining the most practical and effective equipment for and methods of measurement.
SCOPE:	These guidelines will be established for all parts regardless of material or size, although both should be taken into consideration when taking measurements.
RESPONSIBILITY:	ALMA International Component Standards Sub-Committee
RECORDS:	Records will be maintained and kept on file by ALMA International.
RELATED DOCUMENTS:	ALMA International Nomenclature Prints (NP's) ALMA International Dimensioning and Tolerancing Guidelines (DG's) ALMA International Measurement Test Methods (TM's) ASME Y14.5M-1994, Dimensioning and Tolerancing ANSI B89.6.2, Temperature and Humidity Environment for Dimensional Measurement ASTM D 685, Standard Practice for Conditioning Paper and Paper Products for Testing ASTM D 1776, Standard Practice for Conditioning and Testing Textiles ASTM E 171, Standard Specification for Standard Atmospheres for Conditioning and Testing Flexible Barrier Materials ISO 139, Textiles - Standard atmospheres for conditioning and testing ISO 291, Plastics - Standard atmospheres for conditioning and testing TAPPI T 402, Standard conditioning and testing atmospheres for paper, board, pulp handsheets, and related products

Definitions

Critical Characteristic (C): This characteristic is critical to the fit and function of the part. Any part produced beyond the tolerance limits will not be usable. A Process Capability Index (Cpk) of no less than 1.33 must be maintained.

Significant Characteristic (S): This characteristic is critical to the fit and function of the part. Any part produced beyond the tolerance limits will not be usable.

Standard Characteristic (no symbol): This characteristic is of moderate importance to the fit and function of the part. Parts produced beyond the tolerance limits may be suitable for some applications.

Units

For uniformity, all characteristics are in SI units. Common examples include:

Distance: millimeter (mm)

Angle: degree (°) *

Mass: gram (g)

Temperature: degree Celsius (°C)

Electrical Resistance: ohm (Ω)

Frequency: hertz (Hz)

* This is not an SI unit but is specified by ASME Y14.5M-1994.

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Standard Atmospheres

	Storage	Preconditioning	Conditioning and Testing
Time (h)	N/A	until equilibrium (24 MIN typical)	until equilibrium (88 MIN typical)
Temperature (°C)	25 MAX	31 ± 1 preferred (31 ± 9 acceptable)	23 ± 1 preferred (23 ± 5 acceptable)
Relative Humidity (%)	34 ± 24 (25 ± 15 after preconditioning)	17.5 ± 2 preferred (17.5 ± 7.5 acceptable)	50 ± 2 preferred (57.5 ± 9.5 acceptable)
Atmospheric Pressure (kPa)	N/A	N/A	96 ± 10
Air Circulation Velocity (m/s)	N/A	N/A	1 MAX

Revision History

Rev Level	Description of Change	Prepared/ Changed By/ Date	Approved By/ Date
DRAFT	Create document	Brian Sterling 6/26/03	ALMA Committee 1/7/04
1/6/08	Added standard atmospheres and related documents	Brian Sterling 1/5/07	ALMA Committee 1/6/08