TECHNICAL SPECIFICATION

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English Version

Guidelines for the evaluation of uncertainty of measurement in air conditioner and heat pump cooling and heating capacity tests (ISO/TS 16491:2012)

Lignes directrices pour l'évaluation de l'incertitude de mesure lors des essais de puissance frigorifique et calorifique des climatiseurs et des pompes à chaleur (ISO/TS 16491:2012)

Leitlinien für die Beurteilung der Messunsicherheit bei der Prüfung der Kühl- und Heizleistung von Klimaanlagen und Wärmepumpen (ISO/TS 16491:2012)

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Foreword

This document (CEN ISO/TS 16491:2012) has been prepared by Technical Committee ISO/TC 86 "Refrigeration and air-conditioning" in collaboration with Technical Committee CEN/TC 113 “Heat pumps and air conditioning units” the secretariat of which is held by AENOR.

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Endorsement notice

The text of ISO/TS 16491:2012 has been approved by CEN as a CEN ISO/TS 16491:2012 without any modification.

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Introduction

This Technical Specification is intended to be a practical guide to assist laboratory personnel in evaluating the uncertainties in the measurement of the cooling and heating capacities of air conditioners and heat pumps. It contains a brief introduction to the theoretical basis for the calculations, and contains examples of uncertainty budget sheets that can be used as a basis for the determination of the uncertainty of measurement.

Guidelines for the evaluation of uncertainty of measurement in air conditioner and heat pump cooling and heating capacity tests

1 Scope

This Technical Specification gives guidance on the practical applications of the principles of performance measurement of air-cooled air-conditioners and air-to-air heat pumps as described in ISO 5151, ISO 13253, and ISO 15042.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC Guide 99, *International vocabulary of metrology — Basic and general concepts and associated terms (VIM)*

ISO/IEC Guide 98-3, *Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement* (GUM:1995)

ISO 3534-1, *Statistics — Vocabulary and symbols — Part 1: General statistical terms and terms used in probability*

ISO 5151, *Non-ducted air conditioners and heat pumps — Testing and rating for performance*

ISO 13253, *Ducted air-conditioners and air-to-air heat pumps — Testing and rating for performance*

ISO 15042, *Multiple split-system air-conditioners and air-to-air heat pumps — Testing and rating for performance*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC Guide 99, ISO/IEC Guide 98-3, ISO 3534-1, ISO 5151, ISO 13253 and ISO 15042 apply.

NOTE The definitions of terms 3.1, 3.2, 3.3, 3.4 and 3.5 are taken from ISO/IEC Guide 99:2007, 2.39, 4.14, 2.53, 4.21 and 4.19, respectively, and they are repeated here for easy reference.

3.1
calibration
operation that, under specified conditions, in a first step, establishes a relation between the quantity values with measurement uncertainties provided by measurement standards and corresponding indications with associated measurement uncertainties and, in a second step, uses this information to establish a relation for obtaining a measurement result from an indication

[SOURCE: ISO/IEC Guide 99:2007, 2.39]