

July 20, 2017

1

UL 8203

**Outline of Investigation for Performance Testing for Ingress of Fibrous
Indoor Dust**

Issue Number: 1

July 20, 2017

Summary of Topics

This First Issue of the Outline of Investigation for Performance Testing for Ingress of Fibrous Indoor Dust, UL 8203, covers the test program for ingress of long-term, airborne and fibrous indoor dust, and its quantifiable analysis on user experience in terms of the amount of dust ingress, performance benchmarking and noise level. This standard also provides a scheme for classifying the level of resistance to dust.

UL's Outlines of Investigation are copyrighted by UL LLC. Neither a printed nor electronic copy of an Outline of Investigation should be altered in any way. All of UL's Outlines of Investigation and all copyrights, ownerships, and rights regarding those Outlines of Investigation shall remain the sole and exclusive property of UL LLC.

COPYRIGHT © 2017 UL LLC

**UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL**



Documents
Document Sharing Hub

No Text on This Page

*UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL*



Documents

Document Sharing Hub

CONTENTS

INTRODUCTION

1 Scope	4
2 Normative References	4
3 Glossary	5

PERFORMANCE

4 General	6
5 Free Dust Accumulation Test	6
5.1 Introduction	6
5.2 Test preparation	7
5.3 Test procedure	9
6 Airborne Noise Measurement	11
6.1 General	11
6.2 Procedure for measurement	11
7 Touch Temperature Measurement	12
7.1 General	12
7.2 Procedure for measurement	12
8 Performance Benchmarking	12
8.1 General	12
8.2 Procedure for measurement	12
9 Dust Mass Concentration Measurement	13
9.1 General	13
9.2 Procedure for measurement	13

CLASSIFICATION

10 Classification of Anti-Dust Protection	14
10.1 General	14
10.2 Initial assessment	14
10.3 Classification	14

BIBLIOGRAPHY

UL COPYRIGHTED MATERIAL –
NOT AUTHORIZED FOR FURTHER REPRODUCTION OR
DISTRIBUTION WITHOUT PERMISSION FROM UL



Documents

Document Sharing Hub

INTRODUCTION

1 Scope

This standard specifies the performance test program for ingress of long-term, airborne and fibrous indoor dust, and its quantifiable analysis in terms of the amount of dust ingress, performance benchmarking and noise level that may have an effect on user experience. This standard also provides a scheme for classifying the level of resistance to dust.

Where no standards exist, use of this standard for other applications is not precluded.

2 Normative References

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

IEC 60721-3-7:2002, Classification of environmental conditions – Part 3-7: Classification of groups of environmental parameters and their severities – Portable and non-stationary use

IECEE Operational Document No. OD-5011, Requirements for traceability of calibrations and calibration intervals

IECEE Operational Document No. OD-5012, Laboratory procedure for acceptance, preparation, extension and use of thermocouples

IECEE Operational Document No. OD-5014, Instrument accuracy limits

ISO 7779:2010, Acoustics – Measurement of airborne noise emitted by information technology and telecommunications equipment

ISO 11201:2010, Acoustics – Noise emitted by machinery and equipment – Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections

UL 62368-1 Audio/video, information and communication technology equipment – Part 1: Safety requirements

3 Glossary

For the purpose of this Outline the following definitions apply.

3.1 ACCESSIBLE PART – A part that can be touched by a body part which is represented by one or more of the test probes in Annex V of IEC 62368-1:2014, as applicable. [SOURCE: IEC 442-01-15; IEC 62368-1:2014, sub-clause 3.3.6.1, modified]

3.2 DUST– Airborne particulate matter of unspecified origin or composition and may involve cotton fibers.

3.3 LINEAR AVERAGE AIR VELOCITY – The ratio of a volumetric air flow and a cross section.

NOTE: It can also be measured by sensing the pressure produced by the movement of air.

3.4 NORMAL OPERATING CONDITION – Operating condition that represents as closely as possible the range of normal use that can reasonably be expected. [SOURCE: IEC 903-01-21; IEC 62368-1:2014, sub-clause 3.3.7.4, modified]

3.5 PERFORMANCE BENCHMARKING – A process of measuring the performance of a product, service or process against another counterpart which generally is chosen to be the best of its kind, also known as best-in-class.

NOTE: In computing, performance benchmarking is to run a suite of tests comprising prescribed test cases, so as to assess the relative performance of an object.

3.6 READABILITY – (also known as Resolution, Scale Division, Scale Interval, Increment or Digit) The smallest change in mass that corresponds to a change in displayed value. In other words, this is the amount that the scale will increment by as weight is added or removed.

3.7 SOUND PRESSURE LEVEL – Ten times the logarithm to the base 10 of the ratio of the square of the sound pressure, p , to the square of a reference value of 20 μPa , expressed in decibels (dB). [SOURCE: ISO/TR 25417:2007, sub-clause 2.2; ISO 80000-8:2007, sub-clause 8.22]

3.8 TYPE TEST – Test on a representative sample with the objective of determining if, as designed and manufactured, it can meet the requirements of this standard. [SOURCE: IEC 62368-1:2014, sub-clause 3.3.6.12]