

INTERNATIONAL  
STANDARD

ISO  
21501-4

Second edition  
2018-05

---

---

---

**Determination of particle size  
distribution — Single particle light  
interaction methods —**

**Part 4:  
Light scattering airborne particle  
counter for clean spaces**

*Détermination de la distribution granulométrique — Méthodes  
d'interaction lumineuse de particules uniques —*

*Partie 4: Compteur de particules en suspension dans l'air en lumière  
dispersée pour espaces propres*



Reference number  
ISO 21501-4:2018(E)

© ISO 2018



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

## Contents

	Page
<b>Foreword</b>	<b>iv</b>
<b>Introduction</b>	<b>v</b>
<b>1 Scope</b>	<b>1</b>
<b>2 Normative references</b>	<b>1</b>
<b>3 Terms and definitions</b>	<b>1</b>
<b>4 Principle</b>	<b>2</b>
<b>5 Basic configuration</b>	<b>3</b>
<b>6 Requirements</b>	<b>3</b>
6.1 Size setting error	3
6.2 Counting efficiency	4
6.3 Size resolution	4
6.4 False count	4
6.5 Maximum particle number concentration	4
6.6 Sampling flow rate error	4
6.7 Sampling time error	4
6.8 Response rate	4
6.9 Calibration interval	4
6.10 Reporting of test and calibration results	5
<b>7 Test and calibration procedures</b>	<b>5</b>
7.1 Size setting	5
7.1.1 Evaluation of size setting error	5
7.1.2 Procedure of size setting	6
7.2 Evaluation of counting efficiency	9
7.3 Evaluation of size resolution	10
7.4 Evaluation of false count	11
7.5 Estimation of coincidence loss at the maximum particle number concentration	11
7.6 Evaluation of sampling flow rate error	12
7.7 Evaluation of sampling time error	12
7.8 Evaluation of response rate	12
<b>Annex A (informative) Counting efficiency</b>	<b>14</b>
<b>Annex B (informative) Size resolution</b>	<b>16</b>
<b>Annex C (informative) False count</b>	<b>17</b>
<b>Annex D (informative) Response rate</b>	<b>18</b>
<b>Annex E (informative) Procedure for evaluating the uncertainties of the results of the performance tests</b>	<b>19</b>
<b>Bibliography</b>	<b>25</b>