

INTERNATIONAL  
STANDARD

ISO  
13472-2

First edition  
2010-05-15

---

---

---

**Acoustics — Measurement of sound  
absorption properties of road surfaces *in  
situ* —**

**Part 2:  
Spot method for reflective surfaces**

*Acoustique — Mesurage in situ des propriétés d'absorption acoustique  
des revêtements de chaussées —*

*Partie 2: Méthode ponctuelle pour les surfaces réfléchissantes*



Reference number  
ISO 13472-2:2010(E)

© ISO 2010

**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2010

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [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>2</b>
<b>4 Principle.....</b>	<b>2</b>
<b>5 Test equipment .....</b>	<b>4</b>
<b>5.1 Components of the test system .....</b>	<b>4</b>
<b>5.2 Sound source.....</b>	<b>4</b>
<b>5.3 Test signal.....</b>	<b>4</b>
<b>5.4 Impedance tube .....</b>	<b>4</b>
<b>5.4.1 Tube diameter .....</b>	<b>4</b>
<b>5.4.2 Tube length and microphone positions .....</b>	<b>5</b>
<b>5.5 Microphones .....</b>	<b>6</b>
<b>5.6 In-situ test fixture between impedance tube and test surface.....</b>	<b>6</b>
<b>5.7 Signal-processing system.....</b>	<b>6</b>
<b>5.8 Thermometer and pressure measurement .....</b>	<b>6</b>
<b>6 Measurement and analysis procedure .....</b>	<b>6</b>
<b>6.1 Stabilizing the system.....</b>	<b>6</b>
<b>6.2 Calibration of the system.....</b>	<b>7</b>
<b>6.3 Reference measurement.....</b>	<b>7</b>
<b>6.4 Background noise measurement.....</b>	<b>7</b>
<b>6.5 Measurement of a road surface .....</b>	<b>7</b>
<b>6.6 Data analysis.....</b>	<b>8</b>
<b>7 Positioning of the equipment.....</b>	<b>8</b>
<b>7.1 Location of the measurement positions .....</b>	<b>8</b>
<b>7.1.1 Test surfaces such as those meeting ISO 10844 requirements .....</b>	<b>8</b>
<b>7.1.2 Regular roads .....</b>	<b>8</b>
<b>7.2 Condition of the road surface .....</b>	<b>8</b>
<b>7.3 Temperature .....</b>	<b>8</b>
<b>8 Measurement and analysis procedure .....</b>	<b>8</b>
<b>9 Measurement uncertainty .....</b>	<b>9</b>
<b>10 Test report.....</b>	<b>11</b>
<b>Annex A (normative) Correction on base of reference measurement .....</b>	<b>12</b>
<b>Annex B (informative) Measurement uncertainty .....</b>	<b>13</b>
<b>B.1 General .....</b>	<b>13</b>
<b>B.2 Expression for the calculation of the absorption coefficient .....</b>	<b>13</b>
<b>B.3 Sources of uncertainty.....</b>	<b>14</b>
<b>B.4 Expanded uncertainty of measurement .....</b>	<b>15</b>
<b>Annex C (informative) Sketch of <i>in-situ</i> test fixture .....</b>	<b>16</b>
<b>Annex D (informative) Example of a test report.....</b>	<b>18</b>
<b>Bibliography.....</b>	<b>20</b>