

---

---

**Acoustics — Noise from shooting  
ranges —**

**Part 1:  
Determination of muzzle blast by  
measurement**

*Acoustique — Bruit des stands de tir —*

*Partie 1: Mesurage de l'énergie sonore en sortie de bouche*





**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 Gun and ammunition</b> .....	<b>5</b>
4.1 General.....	5
4.2 Gun.....	5
4.3 Ammunition.....	6
4.4 Ballistic parameters.....	7
4.5 Test situation.....	8
4.6 Other features.....	8
<b>5 Basic concept for measurement and analysis</b> .....	<b>8</b>
5.1 General.....	8
5.2 Quantity to be measured.....	10
5.3 Angular source energy distribution level.....	10
5.4 Interpolated angular source energy distribution level.....	11
5.5 Source energy level.....	11
5.6 Directivity.....	11
<b>6 Measurement site</b> .....	<b>12</b>
6.1 Site.....	12
6.2 Weather conditions.....	12
<b>7 Measurement planning</b> .....	<b>12</b>
7.1 General remarks.....	12
7.2 Gun.....	12
7.3 Measurement position.....	12
7.4 Measurement equipment.....	13
7.5 Dealing with projectile sound.....	13
<b>8 Calibration and validation</b> .....	<b>13</b>
<b>9 Measurement procedures</b> .....	<b>14</b>
9.1 General.....	14
9.2 Ground reflection correction.....	14
<b>10 Control of measurement layout</b> .....	<b>14</b>
<b>11 Measurement uncertainty</b> .....	<b>15</b>
11.1 General.....	15
11.2 Empirical part.....	15
<b>12 Report</b> .....	<b>16</b>
<b>Annex A (informative) Small arms glossary</b> .....	<b>17</b>
<b>Annex B (informative) Example</b> .....	<b>28</b>
<b>Annex C (informative) Guidance on the measurement uncertainty</b> .....	<b>36</b>
<b>Bibliography</b> .....	<b>39</b>