

PUBLICLY  
AVAILABLE  
SPECIFICATION

ISO/PAS  
20065

First edition  
2016-07-01

---

---

**Acoustics — Objective method for  
assessing the audibility of tones in  
noise — Engineering method**

*Acoustique — Méthode objective pour évaluer l'audibilité des tons  
dans le bruit — Méthode d'expertise*



Reference number  
ISO/PAS 20065:2016(E)

© ISO 2016



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, 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  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org

# Contents

Page

Foreword .....	iv
<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 Measurement procedure .....</b>	<b>5</b>
4.1 General .....	5
4.2 Measurement instruments .....	5
4.3 Merging the basic spectra .....	5
<b>5 Evaluation .....</b>	<b>6</b>
5.1 General information .....	6
5.2 Width $\Delta f_c$ of the critical band .....	7
5.3 Determination of prominent tones .....	7
5.3.1 General information .....	7
5.3.2 Determination of the mean narrow-band level $L_S$ of the masking noise .....	7
5.3.3 Determination of the tone level $L_T$ of a tone in a critical band .....	8
5.3.4 Distinctness of a tone .....	9
5.3.5 Determination of the critical band level, $L_G$ , of the masking noise .....	10
5.3.6 Masking index .....	10
5.3.7 Determination of the audibility, $\Delta L$ .....	10
5.3.8 Determination of the decisive audibility, $\Delta L_j$ , of a narrow-band spectrum .....	10
5.3.9 Determination of the mean audibility $\Delta L$ of a number of spectra .....	12
<b>6 Calculation of the uncertainty of the audibility <math>\Delta L</math> .....</b>	<b>13</b>
<b>7 Recommendations on the presentation of results .....</b>	<b>16</b>
7.1 Measurement .....	16
7.2 Acoustic environment .....	16
7.3 Instruments for measurement, recording and evaluation .....	16
7.4 Acoustic data .....	16
<b>Annex A (informative) Window effect and Picket fence effect .....</b>	<b>17</b>
<b>Annex B (informative) Resolving power of the human ear at frequencies below 1 000 Hz and geometric position of the critical bands — corner frequencies .....</b>	<b>20</b>
<b>Annex C (informative) Masking, masking threshold, masking index .....</b>	<b>22</b>
<b>Annex D (informative) Iterative method for the determination of the audibility, <math>\Delta L</math> .....</b>	<b>23</b>
<b>Annex E (informative) Example for the determination of the tonal audibility .....</b>	<b>27</b>
<b>Bibliography .....</b>	<b>33</b>