# ISO 532-1:2017-06 (E)

## Acoustics - Methods for calculating loudness - Part 1: Zwicker method

## Contents

Page


Foreword ..... iv

Introduction ..... v

1 Scope ..... 1

2 Normative references ..... 1

3 Termsanddefinitions ..... 1

4 Specificationofinputsignalandinstrumentation ..... 4

5 Method for stationary sounds ..... 5
5.1 General ..... 5
5.2 Description of the method ..... 6
5.3 Calculation of loudness and loudness level ..... 9

6 Method for time-varying sounds ..... 12
6.1 General ..... 12
6.2 Description of the method ..... 13
6.3 Calculation algorithm ..... 14
6.4 Guidance for determining the loudness of time-varying sounds ..... 15

7 Reporting data ..... 16

Annex A (normative) Numerical details and program code for the calculation of loudness of stationary and time-varying sounds (test implementation) ..... 17

Annex B (normative) Test signals for the validation of implementation ..... 45

Annex C (informative) Graphical user interface for the calculation of loudness of stationary and time-varying sounds ..... 48

Annex D (informative) Guidance for determining the loudness when using head and torso simulator microphones ..... 53

Annex E (informative) Uncertainty considerations ..... 54

Bibliography ..... 57