DIN EN 13819-3:2024-06 (E)

Hearing protectors - Testing - Part 3: Supplementary acoustic test methods (includes Amendment A1:2024)

Contents

Page

European foreword 4

Introduction 5

1 Scope 6

2 Normative references 6

3 Terms and definitions 6

4 Symbols and abbreviations 8

5 Test conditioning and equipment 8
5.1 Conditioning and testing atmosphere 8
5.2 Occluded-ear simulator 9
5.3 Head simulator 9
5.4 Microphone in Real Ear (MIRE) 9

6 Test signals 9
6.1 General 9
6.2 HML test sounds 9
6.3 Broadband noise test sound 10
6.4 Speech signal 10
6.5 Entertainment audio test signal 10

7 Test procedures 10
7.1 General 10
7.2 Level-dependent hearing protectors 10
7.2.1 Introduction 10
7.2.2 Level-dependent earmuff 10
7.2.3 Level-dependent earplug 11
7.3 Active noise reduction (ANR) hearing protectors 14
7.3.1 General 14
7.3.2 Earmuff with active noise reduction 14
7.4 Hearing protectors with FM radio receiver or DAB/DAB+ radio receiver" 15
7.4.1 General 15
7.4.2 Earmuff with FM radio receiver or DAB/DAB+ radio receiver" 16
7.4.3 Earplug with FM radio receiver or DAB/DAB+ radio receiver" 17
7.5 Hearing protectors with Bluetooth® receiver 19
7.5.1 Earmuff with Bluetooth® receiver 19
7.5.2 Earplug with Bluetooth® receiver 21
7.6 Hearing protectors with electrical audio input 24
7.6.1 Earmuff with electrical audio input 24
7.6.2 Earplug with electrical audio input 26
7.7 Hearing protectors with built-in two-way radio 28
7.7.1 Earmuff with built-in analogue frequency modulated two-way radio 28
7.7.2 Earplug with built-in analogue frequency modulated two-way radio 30

Annex A (informative) Overview of supplementary acoustic test methods 32

Annex B (normative) HML test sounds and pink noise with Lp,A = 100 dB and tolerances 33

! ! ! ! " Annex C (informative) Calculation example for level-dependent hearing protectors 35

C.1 Calculation example for level-dependent earmuff 35
C.2 Calculation example for level-dependent earplugs 36

Annex D (informative) Calculation example for ANR 37

Annex E (informative) Uncertainty of measurement and interpretation of test results 38

Bibliography 40