ISO 362-1:2015-01 (E)

Measurement of noise emitted by accelerating road vehicles - Engineering method - Part 1: M and N categories

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 1

3 Termsanddefinitions 2

4 Symbols terms and abbreviated terms 6

5 SpecificationoftheaccelerationforvehiclesofcategoriesM1andM2havinga maximum authorized mass not exceeding 3 500 kg and of category N1 9
5.1 General 9
5.1.1 Applicability and conditions 9
5.1.2 Calculation of total engine power 9
5.1.3 Battery state of charge 10
5.2 Calculation of acceleration 10
5.2.1 Calculation procedure for vehicles with manual transmission, automatic transmission, adaptive transmission, and continuously variable transmission (CVT) tested with locked gear ratios 10
5.2.2 Calculation procedure for vehicles with automatic transmission, adaptive transmission, and CVT tested with non-locked gear ratios 10
5.3 Calculation of the target acceleration 11
5.4 Calculation of the reference acceleration 11
5.5 Partial power factor kP 12

6 Instrumentation 12
6.1 Instruments for acoustical measurement 12
6.1.1 General 12
6.1.2 Calibration 12
6.1.3 Compliance with requirements 12
6.2 Instrumentation for speed measurements 12
6.3 Meteorological instrumentation 13

7 Acoustical environment, meteorological conditions, and background noise 13
7.1 Test site 13
7.2 Meteorological conditions 14
7.3 Background noise 14

8 Test procedures 15
8.1 Microphone positions 15
8.2 Conditions of the vehicle 15
8.2.1 General conditions 15
8.2.2 Test mass of the vehicle 15
8.2.3 Tyre selection and condition 18
8.3 Operating conditions 18
8.3.1 Vehicles of categories M1 and M2 having a maximum authorized mass not exceeding 3 500 kg and category N1 18

8.3.2 Vehicles of category M2 having a maximum authorized mass exceeding 3 500 kg, and categories M3, N2 and N3 21
8.4 Measurement readings and reported values 25
8.4.1 General 25
8.4.2 Data compilation 25
8.4.3 Vehicles of categories M1 and M2 having a maximum authorized mass not exceeding 3 500 kg and category N1 26
8.4.4 Vehicles of category M2 having a maximum authorized mass exceeding 3 500 kg and categories M3, N2, and N3 26
8.5 Measurement uncertainty 27

9 Test report 27

Annex A (informative) Technical background for development of vehicle noise test procedure based on in-use operation in urban conditions 29

Annex B (informative) Measurement uncertainty -- Framework for analysis according to ISO/IEC Guide 98-3 (GUM) 51

Annex C (informative) Flowchart of the procedure for categories M1 and M2 having a maximum authorized mass not exceeding 3 500 kg and category N1 54

Annex D (informative) Flowchart for vehicles of category M2 having a maximum authorized mass exceeding 3 500 kg and categories M3, N2, and N3 with locked gears 59

Annex E (informative) Flowchart for vehicles of category M2 having a maximum authorized mass exceeding 3 500 kg and categories M3, N2, and N3 with non-locked gears 60

Annex F (informative) Flowchart for vehicles of category M2 having a maximum authorized mass exceeding 3 500 kg and categories M3, N2, and N3 with no rotational engine speed available 62

Annex G (informative) Indoor test operation 63

Bibliography 66