

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	Terms and definitions	2
4	Symbols terms and abbreviated terms	6
5	Specification of the acceleration for vehicles of categories M1 and M2 having a 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 k_P	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