

DIN ISO 362-3:2021-11 (E)

Measurement of noise emitted by accelerating road vehicles - Engineering method - Part 3: Indoor testing M and N categories (ISO 362-3:2016)

| Contents | | Page |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| National foreword | | 4 |
| National Annex NA (informative) Bibliography | | 5 |
| Foreword | | 6 |
| Introduction | | 7 |
| 1 | Scope | 8 |
| 2 | Normative references | 8 |
| 3 | Terms and definitions | 9 |
| 4 | Symbols and abbreviated terms | 9 |
| 5 | Acceleration for vehicles of categories M1 and M2 having a maximum authorized mass not exceeding 3 500 kg, and of category N1 | 12 |
| 5.1 | General | 12 |
| 5.1.1 | Applicability and conditions | 12 |
| 5.1.2 | Calculation of total engine power | 12 |
| 5.1.3 | Battery state of charge | 12 |
| 5.2 | Calculation of acceleration | 12 |
| 5.2.1 | Calculation procedure for vehicles with manual transmission, automatic transmission, adaptive transmission, and continuously variable transmission (CVT) tested with locked gear ratios | 12 |
| 5.2.2 | Calculation procedure for vehicles with automatic transmission, adaptive transmission, and CVT tested with non-locked gear ratios | 12 |
| 5.3 | Calculation of the target acceleration | 13 |
| 5.4 | Calculation of the reference acceleration | 13 |
| 5.5 | Partial power factor, k_p | 13 |
| 6 | Instrumentation | 13 |
| 6.1 | Instruments for acoustical measurement | 13 |
| 6.1.1 | General | 13 |
| 6.1.2 | Calibration | 14 |
| 6.2 | Conformity with requirements | 14 |
| 6.3 | Instrumentation for speed measurement | 14 |
| 6.4 | Meteorological instrumentation | 14 |
| 7 | Test room requirements | 14 |
| 7.1 | General | 14 |
| 7.2 | Test room dimensions | 15 |
| 7.3 | Acoustical qualification of the room | 17 |
| 7.3.1 | General | 17 |
| 7.3.2 | Validation of free-field conditions | 17 |
| 7.3.3 | Qualification procedure | 20 |
| 7.4 | Condition of the floor | 21 |
| 7.5 | Cooling, ventilation, air temperature, exhaust gas management | 21 |
| 7.6 | Background noise | 21 |
| 8 | Dynamometer requirements | 22 |
| 8.1 | Type of texture of the rollers | 22 |
| 8.2 | Diameter of the rollers | 22 |
| 8.3 | Reproducibility of the pass-by dynamics | 22 |
| 8.4 | Single-axle or multi-axle operation | 23 |
| 8.5 | Noise emission limit under operating conditions produced by the dynamometer rollers | 23 |

| | | |
|-----------|-----------------------------------------------------------------------------------------------------------------------------|-----------|
| 9 | Test procedures | 23 |
| 9.1 | General | 23 |
| 9.2 | Microphone array — Hardware and software | 23 |
| 9.3 | Vehicle fixing system | 24 |
| 9.4 | Conditions of the vehicle | 24 |
| 9.4.1 | General conditions | 24 |
| 9.4.2 | Test mass of the vehicle | 24 |
| 9.4.3 | Tyre selection and tyre condition | 25 |
| 9.5 | Operating conditions | 26 |
| 9.5.1 | Vehicles of categories M1, M2 having a maximum authorized mass not exceeding 3 500 kg, and N1 | 26 |
| 9.5.2 | Vehicles of categories M2 having a maximum authorized mass exceeding 3 500 kg, M3, N2 and N3 | 26 |
| 9.6 | Measurement readings and reported values | 27 |
| 9.6.1 | General | 27 |
| 9.6.2 | Data compilation | 28 |
| 9.6.3 | Vehicles of categories M1 and M2 having a maximum authorized mass not exceeding 3 500 kg, and of category N1 | 28 |
| 9.6.4 | Vehicles of categories M2 having a maximum authorized mass exceeding 3 500 kg, M3, N2, and N3 | 28 |
| 9.7 | Measurement uncertainty | 28 |
| 10 | Test methods and test report | 29 |
| 10.1 | General | 29 |
| 10.2 | Variant A | 29 |
| 10.2.1 | General | 29 |
| 10.2.2 | Power train noise | 29 |
| 10.2.3 | Tyre/road noise | 29 |
| 10.2.4 | Calculation of the total vehicle noise using variant A | 30 |
| 10.3 | Test report | 30 |
| | Annex A (normative) Validation of method | 31 |
| | Annex B (normative) Procedure for measurement, evaluation, and calculation of tyre/road noise when using variant A | 35 |
| | Annex C (informative) Procedure for measurement, evaluation, and calculation of tyre/road noise when using variant B | 48 |
| | Annex D (informative) Measurement uncertainty — Framework for analysis according to ISO/IEC Guide 98-3 | 50 |
| | Annex E (informative) Room length deviation from recommendation | 56 |
| | Bibliography | 58 |