

DIN ISO 16254:2026-09 (E)

Acoustics - Measurement of sound emitted by road vehicles of category M and N at standstill and low speed operation - Engineering method (ISO 16254:2024)

Contents

Page

Foreword.....	v
Introduction.....	vi
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	2
4 Symbols and abbreviated terms.....	3
5 Instrumentation.....	6
5.1 Instruments for acoustic measurement.....	6
5.1.1 General.....	6
5.1.2 Daily verification and adjustment.....	7
5.1.3 Conformity with requirements.....	7
5.2 Instrumentation for speed measurements.....	7
5.3 Meteorological instrumentation.....	8
6 Acoustic environment, meteorological conditions, and background noise.....	8
6.1 Test site.....	8
6.1.1 General.....	8
6.1.2 Outdoor testing.....	8
6.1.3 Indoor hemi anechoic or anechoic testing.....	9
6.1.4 Indoor external sound generation system testing.....	11
6.2 Meteorological conditions.....	11
6.2.1 General.....	11
6.2.2 Outdoor measurements.....	11
6.2.3 Indoor measurements.....	11
6.3 Background noise.....	11
6.3.1 Measurement criteria for A-weighted sound pressure level.....	11
6.3.2 Background noise requirements when analysing in one-third octave bands.....	12
6.3.3 Measurement background noise when testing a component.....	13
7 Test procedures.....	13
7.1 Full vehicle testing.....	13
7.1.1 Microphone positions.....	13
7.1.2 Conditions of the vehicle.....	13
7.1.3 Test mass of vehicle.....	14
7.1.4 Tyre selection and condition.....	14
7.1.5 Operating conditions.....	14
7.1.6 Measurement readings and reported values.....	16
7.1.7 Data compilation.....	18
7.1.8 Reported standstill results.....	20
7.1.9 Reported slow speed cruise result at 10 km/h.....	20
7.2 Measurement of sound to determine frequency shift.....	20
7.2.1 General.....	20
7.2.2 Instrumentation.....	20
7.2.3 Signal processing requirements.....	20
7.2.4 Test facilities.....	20
7.2.5 Frequency shift measurement test procedure.....	21
7.3 Measurement uncertainty.....	23
8 Test report.....	24

Annex A (informative) Information on development of ISO 16254 27

Annex B (informative) Development of frequency shift information 29

Annex C (informative) Relevance of objective acoustic data to pedestrian safety 31

**Annex D (informative) Measurement uncertainty – Framework for analysis according to ISO/
IEC Guide 98-3 (GUM) 33**

Annex E (informative) Testing requirements for reduced uncertainty 41

Annex F (informative) Frequency identification of tones using the fast Fourier transformation 42

**Annex G (informative) Flowchart of the procedure for measurement and reporting of
background noise 44**

**Annex H (informative) Flowchart for the procedure to measure and report A-weighted sound
pressure levels 45**

**Annex I (informative) Flowchart for the procedure to report A-weighted one-third octave band
sound pressure levels 47**

Annex J (informative) Tonality 48

Bibliography 54