

# ISO/TR 17534-4:2020 (E)

## Acoustics — Software for the calculation of sound outdoors — Part 4: Recommendations for a quality assured implementation of the COMMISSION DIRECTIVE (EU) 2015/996 in software according to ISO 17534-1

---

### Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms and definitions
4	Identification of the official documentation
5	Uniform and agreed interpretation of ambiguities
5.1	General
5.2	Sloping objects
5.3	Equivalent heights
5.4	Alternative statistical approach
5.5	Octave band centre frequency $f_m$
5.6	Ground factor of the source area, $G_S$
5.7	Distances in Figure 2.5.b of CNOSSOS-EU:2015
5.8	Equivalent heights in Equation (2.5.20) of CNOSSOS-EU:2015
5.9	Rayleigh's Criterion
5.10	Parameter $e$
5.11	Diffraction under favourable conditions
5.12	Error in Figure 2.5.f and Equation (2.5.29) of CNOSSOS-EU:2015
5.13	Lateral diffraction
5.14	Reflection on nearly vertical objects
5.15	Retrodiffraction
6	Test cases
6.1	General
6.2	Test cases with intermediate and final results
6.2.1	TC01-TC03 — Flat ground with homogeneous acoustic properties
6.2.2	TC01 — Reflecting ground ( $G = 0$ )
6.2.3	TC02 — Mixed ground ( $G = 0,5$ )
6.2.4	TC03 — Porous ground ( $G = 1$ )
6.2.5	TC04 — Flat ground with spatially varying acoustic properties
6.2.6	TC05 — Ground with spatially varying heights and acoustic properties
6.2.7	TC06 — Reduced receiver height to include diffraction in some frequency bands
6.2.8	TC07 — Flat ground with spatially varying acoustic properties and long barrier
6.2.9	TC08 — Flat ground with spatially varying acoustic properties and short barrier
6.2.10	TC09 — Ground with spatially varying heights and and acoustic properties and short barrier
6.2.11	TC10 — Flat ground with homogeneous acoustic properties and cubic building — Receiver at low height
6.2.12	TC11 — Flat ground with homogeneous acoustic properties and cubic object – receiver at large height
6.2.13	TC12 — Flat ground with homogeneous acoustic properties and polygonal object — Receiver at low height
6.2.14	TC13 — Ground with spatially varying heights and acoustic properties and polygonal object

- 6.2.15 TC14 — Flat ground with homogeneous acoustic properties and polygonal object — Receiver at large height
- 6.2.16 TC15 — Flat ground with homogeneous acoustic properties and four buildings
- 6.2.17 TC16 — Reflecting barrier on ground with spatially varying heights and acoustic properties
- 6.2.18 TC17 — Reflecting barrier on ground with spatially varying heights and acoustic properties — Reduced receiver height
- 6.2.19 TC18 — Screening and reflecting barrier on ground with spatially varying heights and acoustic properties
- 6.2.20 TC19 — Complex object and 2 barriers on ground with spatially varying heights and acoustic properties
- 6.2.21 TC20 — Ground with spatially varying heights and acoustic properties
- 6.2.22 TC21 — Building on ground with spatially varying heights and acoustic properties
- 6.2.23 TC22 — Building with receiver backside on ground with spatially varying heights and acoustic properties
- 6.2.24 TC23 — Two buildings behind an earth-berm on flat ground with homogeneous acoustic properties
- 6.2.25 TC24 — Two buildings behind an earth-berm on flat ground with homogeneous acoustic properties – receiver position modified
- 6.2.26 TC25 — Replacement of the earth-berm by a barrier
- 6.2.27 TC26 — Road source with influence of retrodiffraction
- 6.2.28 TC27 — Source located in flat cut with retro-diffraction
- 6.2.29 TC28 — Propagation over a large distance with many buildings between source and receiver
- 6.3 Summary of the final results

7 Example of a template form for the declaration of conformity

Page count: 124