

DIN ISO 10494:2021-07 (E)

Turbines and turbine sets - Measurement of emitted airborne noise - Engineering /survey method (ISO 10494:2018)

Contents		Page
National foreword		4
National Annex NA (informative) Bibliography		5
Foreword		6
Introduction		7
1	Scope	10
2	Normative references	10
3	Terms and definitions	10
4	Acoustic environment	14
4.1	Criteria of adequacy of the test environment	14
4.2	Criteria for background noise	15
4.3	Wind	15
4.4	Special measurement methods	15
5	Instrumentation	15
6	Installation and operation of turbine set	15
6.1	General	15
6.2	Mounting of turbine set	16
6.3	Operation of turbine set during test	16
6.4	Auxiliary equipment and coupled machines	16
7	Sound pressure levels on the measurement surface	16
7.1	Reference surface and measurement surface	16
7.2	Location and number of microphone positions	18
7.2.1	General	18
7.2.2	Additional microphone positions on measurement surface	19
7.2.3	Surface noise	20
7.3	Conditions of measurement	20
7.3.1	General	20
7.3.2	Calibration	20
7.3.3	Measurement of the A-weighted sound pressure level	20
7.3.4	Measurement of sound pressure spectrum	20
8	Calculation of surface sound pressure level and sound power level	21
8.1	Corrections for background noise	21
8.2	Calculation of sound pressure level averaged over the measurement surface	22
8.3	Calculation of surface time-averaged sound pressure levels	22
8.4	Calculation of sound power level	22
8.5	Calculation of directivity index and directivity factor	23
9	Information to be recorded	23
9.1	General	23
9.2	Noise source under test	23
9.3	Acoustic environment	23

9.4	Instrumentation	23
9.5	Acoustical data	24
9.6	Date and location	24
10	Test report	24
Annex A (normative) Qualification procedures for the acoustic environment		25
Annex B (normative) Gas turbines		29
Annex C (normative) Steam turbines		40
Annex D (informative) Calculation of directivity index and directivity factor using a hemispherical microphone array		45
Bibliography		46