

# ISO 20908:2023-01 (E)

## Tyre sound emission test - Methods of drum

---

<b>Contents</b>		<b>Page</b>
Foreword .....		v
Introduction .....		vi
1	Scope .....	1
2	Normative references .....	1
3	Terms and definitions .....	1
4	Symbols and abbreviated terms .....	2
5	Instrumentation .....	4
5.1	Instruments for acoustical measurement .....	4
5.2	Microphones .....	4
5.3	Temperature measurement .....	5
5.3.1	General .....	5
5.3.2	Room temperature .....	5
5.3.3	Calibration .....	5
5.4	Conformity with requirements .....	5
6	Test room requirements .....	5
6.1	General .....	5
6.2	Microphone array setup .....	6
6.2.1	General .....	6
6.2.2	Linear array .....	7
6.2.3	Circular array .....	8
6.2.4	One microphone measurement set up .....	9
6.3	Far field conditions .....	10
6.4	Test room dimensions .....	10
6.5	Acoustical qualification of the room .....	11
6.5.1	General .....	11
6.5.2	Validation of the inverse square law on lines from the centre of the room to microphone position .....	11
6.5.3	Validation of the inverse square law with at least one line from the centre of the room to a microphone position and the points of concern of the microphone arrays .....	12
6.5.4	Validation of the inverse square law along the complete microphone array .....	14
6.5.5	Qualification procedure .....	15
6.6	Condition of the floor .....	15
6.7	Cooling, ventilation, room temperature .....	16
6.8	Background noise .....	16
7	Drum, drum surface and loading device requirements .....	16
7.1	Tyre loading device .....	16
7.2	Drum characteristics .....	16
7.2.1	Drum diameter .....	16
7.2.2	Drum width .....	16
7.2.3	Height of the drum top point above the floor .....	16
7.2.4	Drum speed .....	16
7.3	Tyre condition .....	16
7.4	Drum surface .....	17
7.5	Tyre pressure measurement device .....	17

8	Preparation and adjustments with respect to tyres .....	17
9	Test method and report .....	18
9.1	General .....	18
9.1.1	Tyre load .....	18
9.1.2	Tyre pressure .....	18
9.1.3	Thermal conditioning .....	18
9.1.4	Speed range .....	18
9.2	Data processing .....	18
9.2.1	Data pre-treatment .....	18
9.2.2	Normalization with respect to distance .....	19
9.2.3	Emulation of fast time weighting .....	19
9.2.4	Normalization with respect to number of tyres, tyre masking effect and vehicle impact ....	19
9.2.5	Normalization with respect to speed .....	20
9.2.6	Correlation with outdoor measurement .....	21
9.2.7	Adjustment of the reported value .....	21
10	Test report .....	21
11	Validation method and alignment coefficient to outdoor measurement .....	23
11.1	Correlation with outdoor reference measurement using ISO 13325 method .....	23
11.2	Alignment process .....	24
11.3	Correction coefficients .....	25
11.3.1	Correction coefficients calculation .....	25
11.3.2	Correlation coefficient calculation .....	25
11.3.3	Correction coefficients usage .....	26
11.4	Measurement stability among time .....	26
12	Measurement uncertainty .....	26
Annex A (informative) Measurement uncertainty -- Framework for analysis according to ISO/IEC Guide 98-3 .....		28
Annex B (informative) Normalization with respect to number of tyres, tyre masking effect, and vehicle impact .....		30
Bibliography .....		38