BS 4142: 2014

8. Background Sound Level

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Background sound level, $L_{A90,T}$

**Definition**

3.4 ‘A-weighted **sound** pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, $T$, measured using time weighting $F$ and quoted to the nearest whole number of decibels’

There is NO SINGLE background sound level – the Achilles heal?
History of $L_{A90,T}$

BS 4142: 1967 $L_{90}$ (i.e. $L_{A90}$)

BS 4142: 1990 $L_{A90,T}$

BS 4142: 1997 $L_{A90,T}$

BS 4142: 2014 $L_{A90,T}$

(plus other codes & guidance)

*But systematically has been open to abuse …*
Avoid using a lowest measured level

Determining representative values and what is ‘typical’

Proportional measurements for an assessment

Distinctions between periods – day, evening, night, weekdays, weekends

Inclusion of other industrial and/or commercial sounds

Suitable measurement locations
Consultation draft key points & comments cont’d

- Measurement period, $T$
- Prescriptive means for determining background sound level
- Application to new sensitive development(s)
- Uncertainty
Abuse of $L_{A90,T}$ – a case history

Figure 5.2 Time history graph of $L_{90}$ noise levels measured at unmanned Position A

The background sound level .... or not (?)
Aspects of the background sound level

‘…. might in part be an indication of relative quietness at a given location’

‘…. does not reflect the occurrence of transient and/or higher sound levels … ’

‘…. generally governed by continuous or semi-continuous sounds’
Application of background sound level

- Proposed, new, modified or additional specific noise source(s)

- Existing specific sound source(s)

- New noise sensitive receptors
Determining $L_{A90,T}$

- Important to ensure values are:
  - reliable
  - representative
  - typical of the period concerned
  - account for the range of levels experienced
- Objective is **NOT** to obtain the lowest measured level
- Can include industrial and/or commercial sounds
Time period, $T$

BS 4142: 1967 – no time period stated

BS 4142: 1990 - no time period stated
  examples used: 20 minutes & 30 minutes

BS 4142: 1997 - no time period stated; not 5 minutes
  examples used: 15 minutes, 30 minutes & 60 minutes
What to measure and assess

- $L_{A_{90},T}$ ($T$ normally not less than 15 minutes)
- Continuous or disaggregated periods
- rounded integers (0,5 rounded up)
- not a mean average of values
- sound sources that comprise the acoustic environment
- meteorological conditions – wind speeds/direction, air temperatures, ground conditions etc.
What to measure and assess cont’d

- describe and report all sources of sound
- > 10 dB above instrument noise floor
Measurement Location

- at the assessment location(s); or
- alternative, comparable location
- justify alternative location(s) – consider uncertainty
- values typical of the period concerned
Using statistical analyses
Questions ..